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Associate Deputy Administrator
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NASA Shared Services Center (NSSC)

Preliminary Implementation Plan Report

Foreword

NASA is an agency that is efficient, effective, and accountable to the American people. NASA's first Implementing Strategy (IS-1) as identified in the *2003 Strategic Plan* is to "Achieve management and institutional excellence comparable to NASA's technical excellence. We are continually exploring new ways to improve our Agency and to truly become "One NASA." Currently, many initiatives are underway in order to achieve these Agency goals. One of these crucial initiatives is the development and implementation of the NASA Shared Services Center (NSSC). The NSSC will deliver to NASA employees across the Agency, a higher level of service and a commitment to becoming "One NASA."

Over the past nine months, the NSSC Implementation Team along with the NSSC Functional Subteams (Facilities, Financial Management, Human Resources, Information Technology, Procurement, and Resources Management) have been working together in order to develop the structure, scope, dynamics, and details of the NASA Shared Services Center. This Preliminary Implementation Plan contains the details of the teams' past nine months of focusing on improving NASA through the NSSC.

We are pleased to share with you the plans for enhancing our Agency through the implementation of the NASA Shared Services Center. The NSSC is the next step for our Agency to take in order to provide our employees with the highest levels of service for a range of needs. This is an exciting time within the NASA family. We are so pleased to have each of you on board as we move forward towards creating an even better NASA than we have today. With your support and commitment to the NSSC, NASA may truly pursue service excellence through the implementation of the NASA Shared Services Center. As we work together towards transforming the NSSC from a concept into reality, we will truly be one step closer to becoming "One NASA."

/Signed/

James Jennings
Associate Deputy Administrator
for Institutions and Asset Management

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1. Executive Summary

The NASA Shared Services Center (NSSC) Implementation Team's mission is "to establish a consolidated shared services organization that will provide higher quality, more cost effective and efficient services for selected NASA business and technical services." This Preliminary NSSC Implementation Plan Report represents the conclusion of the Confirmation Phase of the Project Plan. The Team has reviewed, revalidated, and augmented the original Consolidated Business Services Study Team Report and several recommendations are included for Executive Council approval.

The NSSC Implementation Team recommends proceeding with the implementation of a NASA Shared Services Center. The Team recommends the Direct Conversion acquisition process per OMB Circular A-76. This scenario assumes there will be no adverse actions to civil service employees, which due to the number of FTE affected, is a requirement under the OMB Competitive Sourcing Guidance for direct conversions. The direct conversion approach would allow the Agency to get Competitive Sourcing credit from OFPP. Moreover, it avoids some expenses from a public-private competition and from a Reduction-in-Force (RIF). Additionally, the avoidance of a RIF also minimizes potential for disparate impact on NASA's diversity accomplishments.

NASA Executive Council approvals current through the release of this document include: 1) approved recommended governance structure, 2) approval to proceed with hiring of NSSC Executive Director and Deputy, 3) approved Implementation Teams recommendations for a shared services environment that focuses on benefits to NASA and consolidation of shared services in a single location for selected functional activities, and 4) approved endorsement of functional review recommendations for activities to consolidate at the NSSC.

After the final evaluation of the candidate sites, there are at least six leading candidates based upon the objective data and approved evaluation areas/criteria. Three of these are located near NASA sites. The final evaluation report is being completed and will be presented to the NASA Executive Council along with a recommendation by the Implementation Team.

Having acquired Executive Council approval, the team will proceed with the development of a detailed human capital strategy and business operations plan as well as the hiring of an NSSC Executive Director. The implementation of a NASA Shared Services Center will provide the potential to achieve standardized business and specialty services that are more consistent, higher-quality, and more timely. The annual estimated cost savings to be realized at stabilization of the NSSC is $6.6 million.

Operational efficiencies will also allow the redeployment of staff and budget to core mission needs. Benefits associated with the implementation of the NASA Shared Services Center include:

- Provides more consistent, high-quality, and timely services at lower cost
- Improves timeliness, accuracy, and consistency of information delivered to the customers
- Promotes strategic management of NASA resources and positions the Agency to capitalize on further innovation

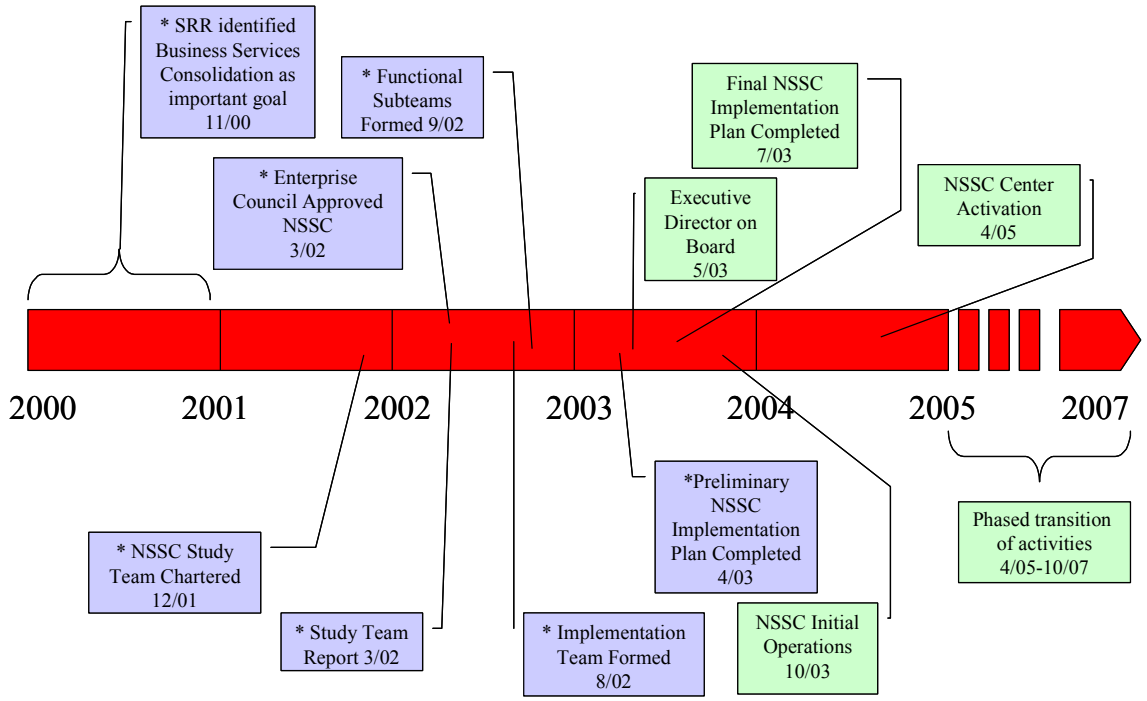
- Supports the President's Management Agenda for improved government performance
- Promotes a "One NASA" Agency focus
- Sustains strong support for individual Centers through resident Customer Service Representatives
- Opportunity to achieve synergy across functions
- Achieves critical mass of "core" expertise to manage and perform shared services
- Reduces resources expended for institutional support areas
- Affords opportunities for continual improvement in each functional area as standardization and 'best practices' are incorporated

A main catalyst for the NSSC is that business support services were negatively impacted by significant workforce reductions during the 1990's. In FY2001, NASA's Strategic Resources Review identified business service consolidation as an important goal. In December 2001, NASA chartered a Study Team to research the shared services concept. The Consolidated Business Services Study Team Report strongly supported the NASA Shared Services Center (NSSC) concept and NASA's Enterprise Council approved the establishment of the NSSC Implementation Team in March 2002. The Implementation Team was formed in August 2002 in order to develop the NSSC implementation plan and schedule. Implementation Team members formed functional subteams in September 2002 to review, revalidate, and augment the Study Team Report.

The Implementation Team and Subteams reviewed the following functions in the context of the NSSC: Human Resources (HR), Procurement, Financial Management (FM), Resources Management (RM), Information Technology (IT), and Facilities. The Implementation Team concluded that a significant number of functional activities or services, along with associated civil service and contractor workforce, are prime candidates for migration to a shared services environment.

The Implementation Team developed an NSSC migration schedule that highlights the various stages of the NSSC implementation. The Team proposes that the NSSC management team be established to begin initial operations in October 2003. During this time, the NASA Computing and Communications Services (NCCS) or IT services will be virtually consolidated under the NSSC. These services will continue to operate utilizing infrastructure currently in-place. The NASA Shared Services Center facility activation date is proposed for April 2005. From April 2005 to October 2007, the activities the implementation team identified as candidates for the NSSC will begin a phased transition. An Integrated Phase-in Plan and associated Human Capital Strategy for impacted Civil Service and NSSC staffing will be developed in the next phase of the project plan. The following figure displays the milestones in the NSSC Project. Milestones with asterisks have been completed.

Figure 1-1: NSSC Project Milestones

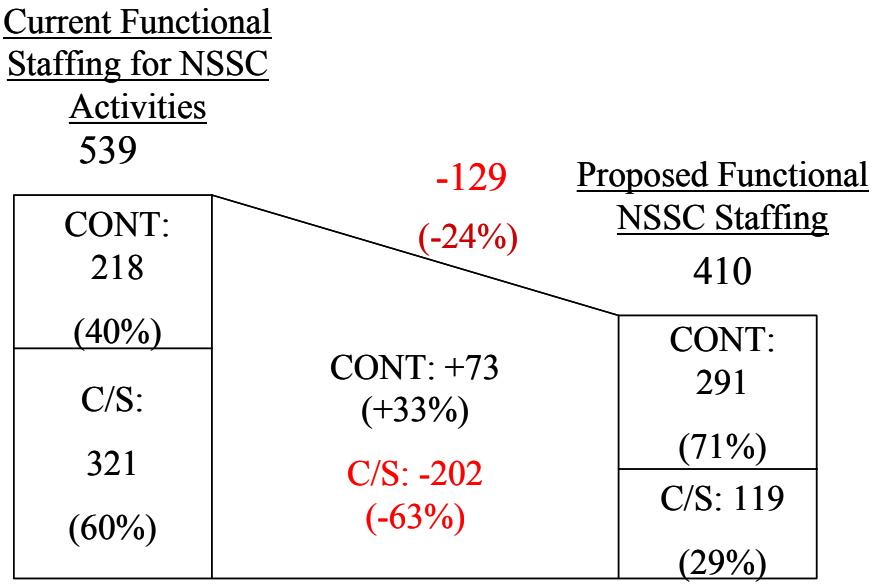


The Implementation Team developed the following guidelines for the organization and governance of the NSSC:

- NSSC will report to the Associate Deputy Administrator for Institutions and Asset Management
- NSSC will act as a peer to NASA Centers
- NSSC will have a single Shared Services Executive who will be a general manager as opposed to a functional manager
- NSSC will have a dotted line relationship with Agency and Center functional leads
- NSSC will have customer support liaisons at the NASA Centers
- A "Board of Directors" composed of various stakeholders will interact with the leadership of the NSSC

With regard to the impact on FTEs, the following chart depicts the changes in Civil Service and Contractor FTEs from the current state to the NSSC Vision (excluding IT numbers).

Figure 1-2: Changes in CS and Contractor FTEs from Current State to NSSC Vision (excluding IT Numbers)



The following table displays, by function, the current FTEs identified as candidates for the NSSC compared to the forecasted FTEs needed in the NSSC to perform the same functional activities.

Table 1-1: Summary FTEs by Function

	FTEs Identified as NSSC Candidates			FTEs Forecasted to Perform Functional Tasks at NSSC		
Function	Civil Service	Contractor	Total	Civil Service	Contractor	Total
HR	79	76	155	21	94	115
Procurement	100	44	144	40	91	131
FM	142	98	240	58	106	164
Subtotal	321	218	539	119	291	410
IT	167	582	749	167	582	749
Total	488	800	1,288	286	873	1,159

* Note: Assume IT FTEs remain constant in the Current State and the NSSC Vision

The following table displays the costs savings per year for aggregate salaries and associated costs for those functions with activities or services migrating to the NSSC.

Table 1-2: Total Annual NSSC Cost Analysis

(FY02M$)	Total Annual Cost for NSSC Candidate FTEs in Current State			Total Annual Cost for FTEs in the NSSC Vision			Dollar Savings (-) or Dollar Loss (+) from Current State to NSSC Vision		
Function	Civil Servants	Contractors	Total	Civil Servants	Contractors	Total	Civil Servants	Contractors	Total
HR	$6.37	$6.34	$12.71	$2.05	$7.80	$9.84	-$4.32	$1.45	-$2.87
FM	$10.69	$7.26	$17.95	$5.13	$8.26	$13.39	-$5.56	$1.00	-$4.56
Procurement	$8.78	$3.85	$12.63	$3.97	$7.38	$11.35	-$4.82	$3.54	-$1.28
Subtotal	$25.85	$17.45	$43.30	$11.14	$23.44	$34.59	-$14.70	$5.99	-$8.71
IT*	$16.79	$106.91	$123.70	$16.79	$106.91	$123.70	$0.00	$0.00	$0.00
Total	$25.85	$17.45	$43.30	$11.14	$23.44	$34.59	-$14.70	$5.99	-$8.71

* Information Technology requirements remain constant

The six functional subteams collected comprehensive data, reviewed functional characteristics (both qualitative and quantitative) and conducted robust analyses in order to arrive at a decision as to whether a functional activity was a candidate for migration to the NSSC. The table below summarizes the six functional areas and the functional activities or services that were examined. The functional tasks were placed into three categories:

- Services to be Consolidated: These functional activities will migrate to the NSSC from FY05 to FY07.
- More Study Needed: Further study could identify tasks within these functions as candidates for NSSC transition.
- Services Remaining at the Centers: Services remaining at the Centers are more strategic in nature and directly support NASA's missions. These services are best performed at the Centers in order to maintain effective relations, provide responsive services and gain organizational understanding in order to enable proactive service delivery.

Table 1-3: NSSC Consolidated Characteristics Matrix

Business Area	Services to be Consolidated	More Study Needed	Services Remaining at Centers
Human Resources *49 Activities Reviewed*	■ Personnel Program Support ■ Employee Development and Training Support ■ Employee Benefits and Services ■ HR Information Systems and Report ■ Personnel Action Processing & Recordkeeping *(27% of HR FTEs)*	■ Management Education Center at WFF	■ Human Capital Planning ■ Organizational Effectiveness ■ Employee Advocacy ■ Management Advisory Services ■ Policy/Program Development
Procurement *109 Activities Reviewed*	■ Transactional Services (Grants, Cooperative Agreements & SBIR/ STTR Processing) ■ NSSC Major Contracting Operations ■ Workforce Development and Management Operations ■Procurement Electronic Business Systems	■ Subcategories of Simplified Acquisition Procurements	■ Policy and strategic support. ■ Center-Specific Mission Procurements.

Business Area	Services to be Consolidated	More Study Needed	Services Remaining at Centers
	(15% of Procurement FTEs)		
Financial Management *29 Activities Reviewed*	■ Accounts Payable (Payroll, Travel, Vendors) ■ Payment Certification ■ Accounts Receivable (Billing, Collection) ■ Payroll, Time & Attendance ■ Labor Distribution ■ Financial Reporting (General Ledger, Treasury 224, NF-1018's) ■ Reimbursable Accounting (Collections, Closeouts) ■ Internal Reviews for NSSC/F office *(44% of FM FTEs)*	■ Property Accounting (Real & Personal) ■ Posting of Contractor 533 Cost Input ■ Travel Ticketing and Reservations function	■ Fund Control ■ Reconciliations to GL and Subsidiary Accounts ■ Rate Development ■ Business Process Leads ■ SAP Super-users Core Finance ■ Budget Execution activities ■ Labor System Accounting and Control ■ Service Pool Accounting and Operations ■ Validation of Receipts ■ Personal and Real Property ■ Cost Estimation (reimbursable, service pool, contracts) ■ Facilities, Pricing Analysis ■ Center Internal Reviews ■ Asset Validation & Evaluation ■ Center Financial Statements ■ 533 Cost Analysis ■ Systems Accounting ■ General Administration and Policy & Training
Resources Management *28 Activities Reviewed*		■ Independent Agency-Level Cost Estimating and Independent Review Capability ■ Initialization of Cost Accruals ■ Centralized Agency Budget Database Entry and Edit ■ Transactional Aspects of Reimbursable Agreements ■ Funds Distribution ■ Funding of Purchase Requests	■ Budget Formulation ■ Budget Justification ■ Budget Execution (most transactional activities already implemented in IFMP) ■ Program Analysis ■ Cost Estimating
Information Technology *37 Activities Reviewed (plus sub-functions)*	■ IFM Competency Center Services ■ NASA'S Computing and Communications Services (NCCS) ■ ODIN Follow-on Services	■ Calendaring ■ Pagers ■ Cell Phones ■ Print/Fax/Copier Services ■ Public Web Hosting ■ Web Shop ■ Document Management ■ Non NISN ISP ■ Competency	■ Program-/Mission-Unique IT Operations

Business Area	Services to be Consolidated	More Study Needed	Services Remaining at Centers
		Management Systems ■ Asset Management Systems	
Facilities *180 Activities Reviewed*		Pending IAM – sub-functions from these functional areas may be able to be transferred: ■ Construction of Facilities (construction/renovation and repair) ■ Locally Approved Construction/Modification ■ Facility Planning and Design Maintenance ■ Real Property Management	■ Advisory - Program/Center Unique Services
Other		■ Legal ■ Patents ■ Security ■ Logistics ■ Environmental (including NEPA) ■ Aircraft ■ Integrated Asset Management (IAM) ■ Export Control ■ Property	

Paramount to the success of the NSSC will be a commitment to proactively and continually improve services and pursue additional candidates for transition to the shared services center. This would include areas identified in the above NSSC Consolidated Matrix under "More Study Needed." In addition, the Implementation Team includes these functional areas for future consideration: legal, patents, security, logistics, environmental, aircraft, integrated asset management (IAM), Export Control and Property.

The NSSC will be dedicated to assessing, enhancing, and continually improving the delivery of shared services to its customers. The NSSC will implement change and improvements throughout the organization to gain cost efficiencies and enhance operations. The NSSC will aggressively use process re-engineering, systems engineering, technology enhancements, and a partnering process to develop a series of initiatives to automate and standardize NASA-wide shared services. Keys to success of the integration effort will be effective partnering with Agency functional area policy makers, as well as Enterprise, Center, and HQ Operations customers.

With appropriate stakeholder partnerships, the NSSC will investigate and develop transition and cross-functional integration opportunities on a continuous basis by applying process re-engineering and systems engineering methods to operating units. These fully partnered transformation opportunities will be presented to the NSSC Board of Directors for review and approval.

The NSSC will continuously assess and benchmark internal processes to look for ways to improve services. The NSSC will identify a transformation agent(s) who will be responsible for identification, analysis, selection, and implementation of process improvements; use a disciplined methodology to determine the overall effectiveness (by time or cost savings) of improved or new processes; prepare detailed plans and schedules for implementation; and prepare thorough follow-up and lessons-learned documentation.

A shared services environment at NASA is necessary in order to promote continual process improvement of business and specialty services across the Agency while maintaining a stronger focus on core mission. The implementation of the NASA Shared Services Center will provide NASA with a wide array of benefits from improved services at lower costs, improved timeliness/accuracy/consistency of information, promotion of strategic management of NASA resources, and performance efficiencies to the support of "One NASA" and the PMA. The NSSC also delivers opportunities to achieve synergy across functions while achieving critical mass of "core" expertise to manage and perform shared services. The NSSC will enable NASA to continually review and re-engineer critical processes in order to constantly improve services provided Agency-wide. The NSSC Implementation Team recommends that NASA aggressively pursue the implementation of the NASA Shared Services Center.

2. NSSC Highlights

2.1 Introduction

The NSSC Implementation Team was formed in August 2002 in order to continue the original Study Team's investigation into implementing a shared services environment at NASA. The Implementation Team used the original Study Team's Report from March 2002 as the foundation for their investigation. The Implementation Team reviewed six functional areas (Human Resources (HR), Procurement, Financial Management (FM), Resources Management (RM), Facilities and Information Technology (IT)) in order to determine which functional activities or services would serve as prime candidates for transition to the NASA Shared Services Center (NSSC). The Implementation Team conducted rigorous analysis in order to also determine cost/benefit, site selection, competitive strategy, and governance and organizational structure. As an end result, the Implementation Team developed this NSSC Preliminary Implementation Plan that discusses how to develop a consolidated organization that provides higher quality, more cost effective and efficient services for selected Agency activities.

2.2 History of Shared Services

"Significant benefits have been achieved with shared services, but the vision for shared services has not been fully realized by any organization. The number of organizations implementing shared service arrangements has grown considerably over the past few years, to the point where over 70% of Fortune 500 companies now have some shared service centers. Continued advances in technology will eliminate the need for many manual transactions and the human effort it takes to perform them. This legacy workforce will be replaced by a leaner, more skilled team that transforms the organization by facilitating business analysis and the delivery of timely, accurate and useful information for decision support." IBM Shared Services Study, 2001.

2.3 Background of the NSSC

This Preliminary NSSC Implementation Plan continues the work of the Consolidated Business Services (CBS) Study Team and the report "Consolidated Business Services – A New Opportunity for Better Services" of March 2002. The conclusions of that study report were:

> "NASA will benefit significantly from consolidating certain business activities into a new Agency service entity. Consolidated business services will improve services, reduce costs, and establish an environment and culture for ongoing best-practice performance. The NASA environment is amenable to a new consolidated business service paradigm:

- Consolidated business services are applicable to approximately 10 to 20 percent of the workforce in the financial management, human resources, procurement, information technology, and resources management areas
- Consolidated business services represent a natural evolution of, and improvement over, recent Agency centralization activities
- Private/public sector organizations have demonstrated that consolidating business services is not only doable but also provides significant benefits

- NASA's IFMP system will establish the prerequisite process standardization and Enterprise Resource Planning (ERP) environment that are critical to NSSC success
- Consolidated business services will not only improve service but also support a variety of new and evolving Agency and Presidential management goals
- NASA's ongoing economic and budgetary challenges are providing the often-needed external stimulus to drive significant Agency changes despite the (at times) natural predisposition to avoid major changes

> The pursuit of a new business service paradigm will be difficult. The consolidation will involve numerous leadership, human capital, and information systems/IT challenges. Despite these challenges, NASA will benefit significantly from consolidated business services."

The impetus for the Study Team's report stemmed partially from the President's Management Agenda (PMA). The PMA seeks performance improvement throughout the government with a focus on spending less on institutional activities so that funds may be allocated to more mission critical projects. The PMA's goal for improvement is founded largely on the performance achievements found in the private sector. Shared services have a long history in both the public and private sectors; however, in recent times growth in the private sector has increased dramatically.

The CBS Study Team's Report assessed the feasibility of the shared services concept at NASA. It concluded that NASA could improve service quality, reduce costs and establish a framework for a continuous improvement culture through the establishment of the NSSC. Upon completion of the study team report, the NSSC Implementation Team was formed to utilize the report as a foundation for further investigation and planning for the NASA Shared Services Center.

2.4 Mission of the Implementation Team

The NSSC Implementation Team has been tasked to develop an NSSC Implementation Plan that will describe in detail the necessary steps to create an efficient and effective NSSC. The mission of the Implementation Team is:

> "To establish a consolidated shared services organization that will provide higher quality, more cost effective and efficient services for selected NASA business and technical services."

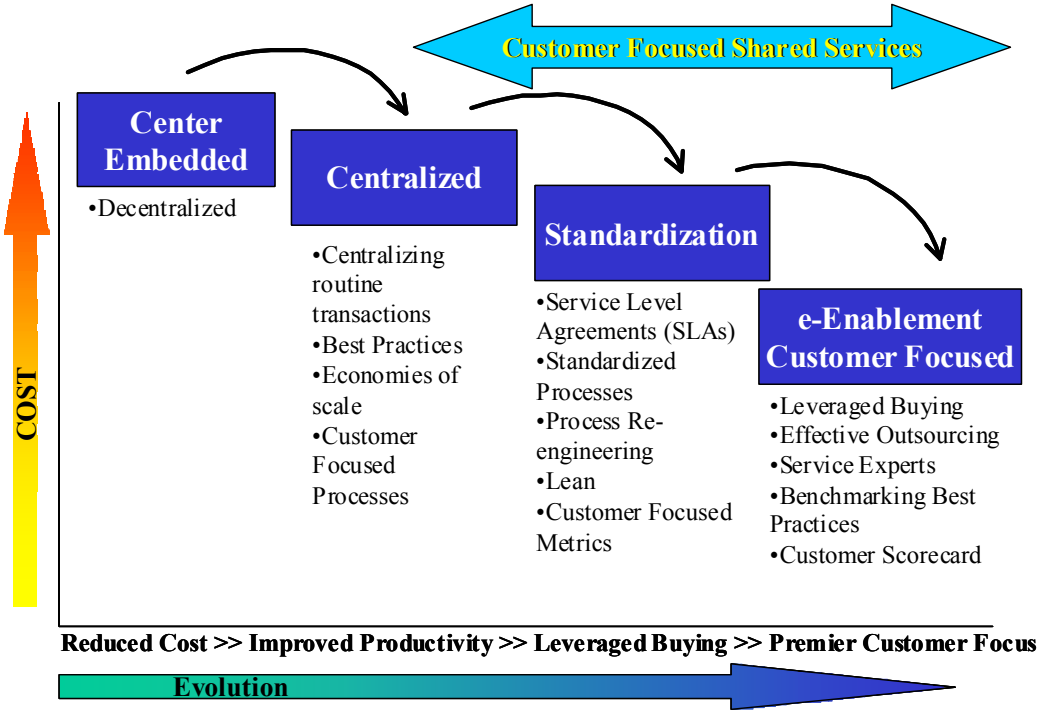
2.5 Benefits of NSSC

The proposed NSSC meets the evolving needs of employees and the Agency as a whole, as NASA takes the necessary steps to thrive in increasingly competitive economic and business conditions. The NSSC will improve NASA in numerous ways including: enhanced services, cost efficiencies, enabling the "One NASA" concept, realizing the goals of the President's Management Agenda (PMA) to establish a framework for a continuous improvement culture, and enabling a greater focus on NASA's core mission.

The NSSC also presents opportunities to achieve synergy across functions while achieving a critical mass of "core" expertise to manage and perform shared services. The NSSC will provide a stronger focal point for delivering transactional and specialty services than currently exists. As

a result, employees at the Centers will be able to allocate more time to value added and consultative services that provide strategic direction through a more pointed focus on NASA's core missions. In addition to aligning with the Agency's strategic direction, the NSSC will leverage economies of scale, which will provide cost benefits and efficiencies while increasing the quality of work produced. The following chart shows that over time, costs decrease while quality of services increase and become more customer focused within a single site Shared Services environment.

Figure 2-1: Evolution of Costs and Customer Services in a Shared Services Environment



The NSSC firmly supports the "One NASA" vision by offering consistent and higher quality services to employees throughout the Agency. In addition to supporting "One NASA", the NSSC will promote initiatives incorporated in the PMA. Executive direction from the PMA calls for more strategic management of human capital, improved resources management, greater focus on core mission performance, more reliance on competitive sourcing, improved financial management, improved IT systems and electronic government. The implementation of the NSSC will provide a robust foundation for future NASA performance and process improvements.

2.6 Proposed NSSC Features

The NSSC will be an addition to NASA's current organizational structure and act as a peer with existing NASA Centers. The most effective site location for the NSSC is currently under investigation. The NSSC will initially consolidate sub-sets of HR, Procurement, Financial Management, and IT functions into a new organization. It is anticipated that other functions within these areas as well as additional services from other functional and specialty activities may be integrated into the NSSC at a later date (i.e. patents, security, logistics, legal, aircraft, and environmental). As a result of the Agency's implementation of IFMP, the NSSC will promote standardized, reengineered and improved processes, operated by NASA and contractor

personnel. The NSSC will foster a dynamic environment based on continuous performance and process improvement.

2.7 Methodology Overview

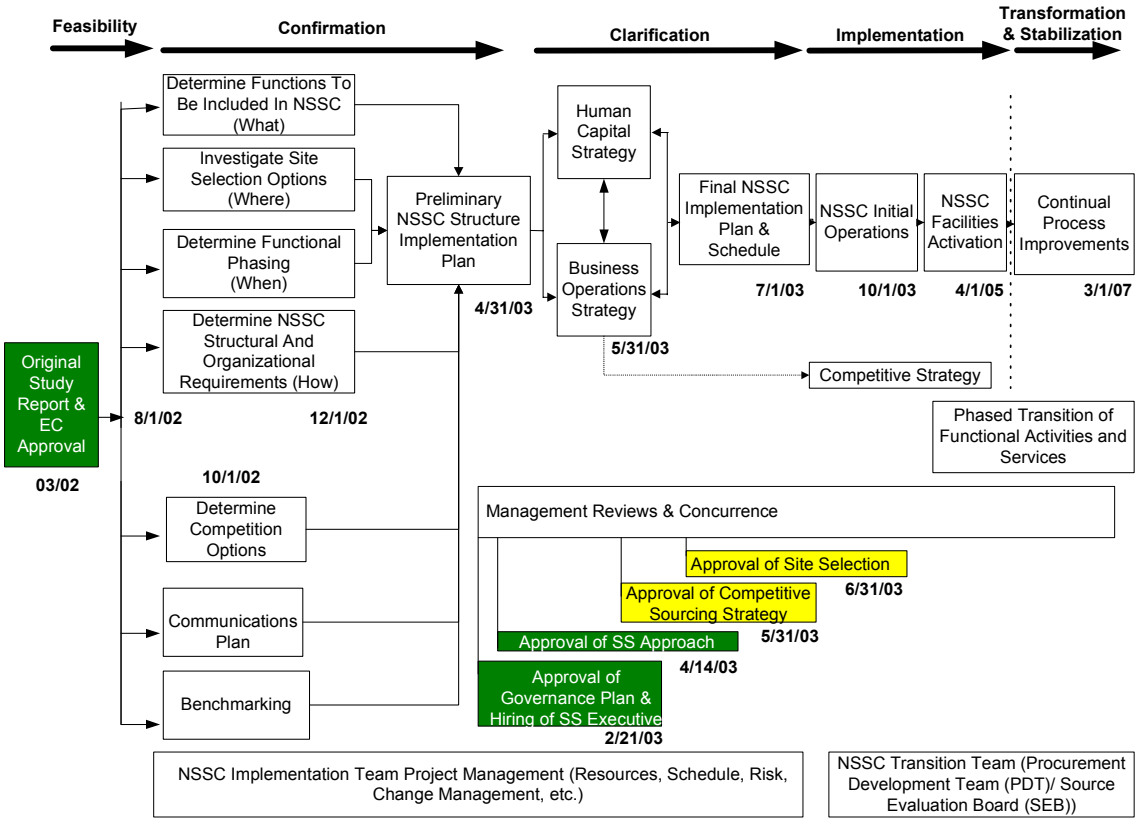
The NSSC Implementation Team adopted a proven methodology to ensure a thoughtful and thorough examination of all issues pertaining to consolidation. The methodology demonstrates the rationale supporting the process and depicts the timing of events, both past and present, that are necessary in order to successfully manage the NSSC project from beginning to end (See Appendix A for a full discussion of the Methodology).

The five stages of the methodology utilized throughout the NSSC project are as follows:

1. Feasibility: Determine that a Shared Services Center merits further investigation
2. Confirmation: Confirm that it is viable to implement shared services
3. Clarification: Develop an implementable and viable solution
4. Implementation: Implement operational change successfully
5. Transformation & Stabilization: Stabilize change and identify and implement continual process improvements

The following table depicts the overall NSSC Project Plan with an overlay of the five stages of the NSSC methodology (See Appendix B for Project Organization and Resource Requirements).

Figure 2-2: NSSC Project Plan Overview



2.8 "Confirmation" of the NSSC

The Implementation Team's work and progress to date on the NSSC project has taken place within the "Confirmation" stage in the NSSC methodology. The following discussion breaks down the "Confirmation" stage into the four primary questions that must be answered at this time: "What", "Where", "When", and "How". "What" and "When" focus on which functional activities or services are candidates for migration along with their respective phasing into the NSSC. "Where" determines the location of the future NSSC. The "How" aspect encompasses governance, structure and reporting flows incorporated into the NSSC.

2.8.1 Determine Functions To Be Included in NSSC (What):

Activities in this stage are directed at identifying which functional processes, activities and tasks are candidates for transition to the NSSC. The "Confirmation" stage has also identified those functional processes, activities and tasks that should remain at the individual Centers. Using the Original Study Team Report as a starting point, the Implementation Team reviewed six functional areas: Human Resources (HR), Financial Management (FM), Procurement, Resources Management (RM), Information Technology (IT), and Facilities. Subteams of subject matter experts in each of the six functional areas were assembled from across NASA Centers and Headquarters (See Appendix K for a comprehensive list of Team Members).

Each functional subteam was tasked to:

- Identify functions performed at all Centers and facilities
- Establish a baseline of current and future costs and resource requirements
- Categorize current functions into "Services to be Consolidated," "More Study Needed," or "Services Remaining at Centers"
- Validate candidate functions through NASA subject matter experts and external benchmarking
- Identify phasing and interdependencies/qualifiers for implementation

2.8.1.1 Summary of Functional Areas Under Review

The Implementation Team examined the following six functions in detail over a period of eight months: Human Resources, Procurement, Financial Management, Resources Management, Information Technology and Facilities. These six functions were examined in detail to determine which functional activities are candidates for transition to the NSSC. Each functional subteam identified functional activities to migrate, baseline of FTEs performing these functions, percent of baseline transitioning, costs and cost savings. The results of this analysis were then further validated internally by NASA subject matter experts, and externally through benchmarking visits.

Through the NSSC, the NASA community will benefit from consolidating functional activities that currently exist separately at each individual Center, at a single location. Over time, due to locating the functional activities in a single community, expertise will continue to increase creating further efficiencies throughout the NSSC.

2.8.1.1.a Human Resources

The Human Resources Subteam identified 40 out of 49 total functional activities under review as candidates for migration to the NSSC. These 40 functional activities identified as NSSC

candidates may be organized into the following five functional categories: Personnel Program Support, Employee Development/ Training Programs Support, Employee Benefits and Services, Human Resource Information Systems and Reports, and Personnel Action Processing and Record Keeping. Those activities remaining at the Centers include the following categories: Human Capital Planning, Organizational Effectiveness, Employee Advocacy, Management Advisory Services, and Policy/ Program Development. The Management Education Center located at Wallops Flight Facility was identified as an area that required further study for possible migration to the NSSC.

These 40 candidate functions identified for migration represent approximately 27% of the total baseline Contractor and Civil Service FTEs for the HR function across the Agency. Initial analysis indicates that the NSSC will reduce aggregate HR salary dollars and associated costs from $12.7M to $9.8M, an annual cost savings of approximately $2.9M (23%) (See Appendix C).

2.8.1.1.b Procurement

The Procurement Subteam identified 43 out of over 100 total functional activities under review as candidates for migration to the NSSC. These 43 functional activities identified as NSSC candidates may be organized into the following four functional categories: Transactional Services, NSSC Major Contracting Operations, Workforce Development & Management Operations, and Procurement Electronic Business Systems. Those activities remaining at the Centers may be organized into the following categories: Policy and Strategic Support and Center-Specific Mission Procurements. The Procurement Subteam also identified the category entitled "Subcategories of Simplified Acquisition Procurements" that will require further study to determine their NSSC candidacy.

The 43 candidate functions identified for migration represent approximately 15% of the total baseline Contractor and Civil Service FTEs for the Procurement function across the Agency. Initial analysis indicates that the NSSC will reduce aggregate Procurement salary dollars and associated costs from $12.6M to $11.3M, an annual cost savings of approximately $1.3M (10%) (See Appendix D).

2.8.1.1.c Financial Management

The Financial Management Subteam identified 14 functional activities as candidates for migration to the NSSC. Those services to be consolidated include: Accounts Payable (Payroll, Travel, Vendors), Payments Certification, Payroll, Time and Attendance, Labor Distribution, Accounts Receivable (Billing and Collection), Reimbursable collections and closeouts, Financial Reporting (General Ledger, Treasury 224, NF 1018s), and Internal Reviews for the NSSC/Finance organization. Those functional activities that will remain at the Center level may be categorized as Fund Control, Reconciliations to GL and Subsidiary Accounts, Rate Development, Business Process Leads, SAP super-users Core Finance, Budget Execution Activities, Labor System Accounting and Control, Service Pool Accounting and Operations, Validation of Receipts, Personal and Real Property, Cost Estimation, Facilities, Pricing Analysis, Center Internal Reviews, Asset Validation and Evaluation, Center Financial Statements, 533 Cost Analysis, Systems Accounting and General Administration and Policy Training. Finally, those activities that need more study before a decision may be made concerning their NSSC

candidacy may be categorized as Property Accounting, Posting of Contractor 533 Cost Input and Travel Ticketing and Reservations.

The 14 functional activities identified for migration represent approximately 44% of the total baseline Contractor and Civil Service FTEs for the Financial Management function across the Agency. Initial analysis indicates that the NSSC will reduce aggregate Financial Management salary dollars and associated costs from $18M to $13.4M, an annual cost savings of approximately $4.6M (25%) (See Appendix E).

2.8.1.1.d Resources Management

The Resources Management Subteam identified several functional activities that could prove to be NSSC candidates upon further study. The following activities should be reviewed after some experience with IFMP to determine if they are viable candidates: Independent Agency-Level Cost Estimating, Initialization of Cost Accruals, Centralized Agency Budget Database Entry and Edit, Transactional Aspects of Reimbursable Agreements, Funds Distribution, and Funding of Purchase Requests. Those functional activities that will remain at the Center level fall into the following categories: Budget Formulation, Budget Justification, Budget Execution (most transactional activities already implemented in IFMP), Program Analysis, and Cost Estimating. The RM Subteam did not identify any activities that would be consolidated during the initial phase of the NSSC (See Appendix F).

2.8.1.1.e Information Technology

The Information Technology Subteam has currently identified 15 services as candidates for migration to the NSSC. These services are already being developed as consolidated shared services under the NASA CIO. These IT services fall under the following three categories: IFM Competency Center Services, NASA'S Computing and Communications Services (NCCS), and ODIN Follow-on Services. Those services that will remain at the Center level fall under the umbrella of Program & Mission Unique IT Operations. The IT Subteam also identified the following services that require further study before a decision may be made concerning their NSSC candidacy: Calendaring, Pagers, Cell Phones, Print/Fax/Copier Services, Public Web Hosting, Web Shop, Document Management, Non NISN ISP, Competency Management Systems and Asset Management Systems.

Due to the dynamic nature of the Information Technology environment, the number of FTE currently performing the candidate functional services is undergoing refinement at the time of this report. Overall the IT community will not experience a reduction in total Civil Service and Contractor FTEs in those functional services slated for NSSC migration. However, the goal is to transform the Agency's ten information architectures into a single Agency architecture. The inherent nature of the IT function lends itself to serve as a major facet of the NSSC. NSSC IT Services will be provided via a virtual organization with matrixed support at many of the Centers (See Appendix G).

2.8.1.1.f Facilities

The Facilities Subteam reviewed approximately 180 functional activities to identify functional activities that may be candidates for transition to the NSSC. The Facilities Subteam reached the conclusion that no Facilities functional activities should migrate to the NSSC. However, the Facilities Subteam recognized that with the advent of IAM and standardized practices, with other

changes in technology, or an increased NSSC orientation and scope, it might be possible to transition some functions in the studied areas to the NSSC. The activities in this category are: Construction of Facilities, Locally Approved Construction/Modification, Facility Planning and Design, Maintenance, Real Property Management, and Master Planning. Activities remaining at the Centers are "Advisory- Program/Center Unique Services." Further, it is important to note that the Facilities Subteam did not review other functional areas of asset management (See Appendix H).

2.8.2 NSSC Consolidated Matrix

The six functional subteams collected comprehensive data, reviewed functional characteristics (both qualitative and quantitative) and conducted robust analysis in order to arrive at a decision as to whether or not a functional activity was a candidate for migration to the NSSC. The table below summarizes the six functional areas and the functional activities or services that were examined. The functional tasks were placed into three categories:

- Services to be Consolidated: These functional activities will migrate to the NSSC from FY05 to FY07
- More Study Needed: Further study could identify tasks within these functions as candidates for NSSC transition
- Services Remaining at the Centers: Services remaining at the Centers are more strategic in nature and directly support NASA's missions. These services are best performed at the Centers in order to maintain effective relations, provide responsive services and gain organizational understanding in order to enable proactive service delivery. At this time, no efficiencies or improvements are expected by migrating these activities to the NSSC

Table 2-1: NSSC Consolidated Characteristics Matrix

Business Area	Services to be Consolidated	More Study Needed	Services Remaining at Centers
Human Resources *49 Activities Reviewed*	■ Personnel Program Support ■ Employee Development and Training Support ■ Employee Benefits and Services ■ HR Information Systems and Report ■ Personnel Action Processing & Recordkeeping *(27% of HR FTEs)*	■ Management Education Center at WFF	■ Human Capital Planning ■ Organizational Effectiveness ■ Employee Advocacy ■ Management Advisory Services ■ Policy/Program Development
Procurement *109 Activities Reviewed*	■ Transactional Services (Grants, Cooperative Agreements & SBIR/ STTR Processing) ■ NSSC Major Contracting Operations ■ Workforce Development and Management Operations ■Procurement Electronic Business Systems	■ Subcategories of Simplified Acquisition Procurements	■ Policy and strategic support ■ Center-Specific Mission Procurements

Business Area	Services to be Consolidated	More Study Needed	Services Remaining at Centers
	(15% of Procurement FTEs)		
Financial Management *29 Activities Reviewed*	■ Accounts Payable (Payroll, Travel, Vendors) ■ Payment Certification ■ Accounts Receivable (Billing, Collection) ■ Payroll, Time & Attendance ■ Labor Distribution ■ Financial Reporting (General Ledger, Treasury 224, NF-1018's) ■ Reimbursable Accounting (Collections, Closeouts) ■ Internal Reviews for NSSC/F office *(44% of FM FTEs)*	■ Property Accounting (Real & Personal) ■ Posting of Contractor 533 Cost Input ■ Travel Ticketing and Reservations function	■ Fund Control ■ Reconciliations to GL and Subsidiary Accounts ■ Rate Development ■ Business Process Leads ■ SAP Super-users Core Finance ■ Budget Execution activities ■ Labor System Accounting and Control ■ Service Pool Accounting and Operations ■ Validation of Receipts ■ Personal and Real Property ■ Cost Estimation (reimbursable, service pool, contracts) ■ Facilities, Pricing Analysis ■ Center Internal Reviews ■ Asset Validation & Evaluation ■ Center Financial Statements ■ 533 Cost Analysis ■ Systems Accounting ■ General Administration and Policy & Training
Resources Management *28 Activities Reviewed*		■ Independent Agency-Level Cost Estimating and Independent Review Capability ■ Initialization of Cost Accruals ■ Centralized Agency Budget Database Entry and Edit ■ Transactional Aspects of Reimbursable Agreements ■ Funds Distribution ■ Funding of Purchase Requests	■ Budget Formulation ■ Budget Justification ■ Budget Execution (most transactional activities already implemented in IFMP) ■ Program Analysis ■ Cost Estimating
Information Technology *37 Activities Reviewed (plus sub-functions)*	■ IFM Competency Center Services ■ NASA'S Computing and Communications Services (NCCS) ■ ODIN Follow-on Services	■ Calendaring ■ Pagers ■ Cell Phones ■ Print/Fax/Copier Services ■ Public Web Hosting ■ Web Shop ■ Document Management ■ Non NISN ISP ■ Competency	■ Program-/Mission-Unique IT Operations

Business Area	Services to be Consolidated	More Study Needed	Services Remaining at Centers
		Management Systems ■ Asset Management Systems	
Facilities *180 Activities Reviewed*		Pending IAM – sub-functions from these functional areas may be able to be transferred: ■ Construction of Facilities (construction/renovation and repair) ■ Locally Approved Construction/Modification ■ Facility Planning and Design Maintenance ■ Real Property Management	■ Advisory - Program/Center Unique Services
Other		■ Legal ■ Patents ■ Security ■ Logistics ■ Environmental (including NEPA) ■ Aircraft ■ Integrated Asset Management (IAM) ■ Export Control ■ Property	

2.8.3 Determine Site (Where)

Site selection is one of the most important factors when planning for and implementing a shared services environment. In order to ensure an objective approach to this determination, various alternative approaches to site selection were considered and discussed by the Implementation Team. These alternatives included (1) an immediate unilateral determination of the site by NASA senior management (i.e., Administrator or Deputy Administrator); (2) some form of competition among those NASA Centers interested in sponsoring or hosting the shared services organization; (3) a multi-tiered evaluation of NASA and non-NASA sites using existing demographic, workforce, cost and other data, followed by an Implementation Team recommendation and NASA Executive Council selection of the site; or, (4) site selection based upon the results of a public-private competition or the private-sector commercial competition of the shared services support service contract (See Appendix A.2.2 for more details on Site Selection).

After considerable review and analysis, the Implementation Team chose to base the site selection process decision on Alternative 3. In order to begin the site selection process, the following evaluation areas and their included criteria were selected:

- Ability to attract and retain qualified workforce
  - Quality and skill of available labor pool in each geographic area
  - Education and training of existing labor pool and feeder systems (e.g., academic, trade and technical training programs)
  - Diversity within the workforce and community
  - Unemployment rates
  - Quality of life (EASI quality rating, cost of living/housing, taxation, medical services, education, cultural and other entertainment, crime rate, etc.)
- Cost of labor/employees
  - Applicable DOL wage rates under Service Contract Act
  - Projected salary rates for exempt professional and managerial workforce
  - Applicable civil service general schedule locality rates
- Availability and cost of facilities
  - Availability, compatibility and cost of government and commercial facilities
  - IT and Communications Infrastructure
  - External Infrastructure and local accessibility (e.g., roads, public transportation, parking)
  - Outfitting and activation costs
- Accessibility relative to non-local travel
  - Distance to hub/major airports
  - Cost and quality of service (facility, number of direct and other flights, impact of delays, etc.)
  - Available hotel accommodations and meeting facilities
  - Hotel and other per diem costs
- Other considerations
  - Congressional districts
  - Rural Development Act
  - National Environmental Policy Act considerations and procedures

During the initial site selection evaluation process, both NASA Center sites and other non-NASA locations will be considered. Before the site is finalized the National Environmental Policy Act (NEPA) review will have to be completed. The analysis required will be an Environmental Assessment at a minimum. Due to the overall scope of the NSSC project, an Environmental Impact Statement, including the requisite public process may have to be completed.

The final evaluation report is being completed and will be presented to the NASA Executive Council along with a recommendation by the Implementation Team. It is recognized by the Team that in addition to the evaluated data, other policy, programmatic and political considerations must be factored into the determination. The Implementation Team also recognizes that determination of competitive strategy could impact site selection decisions.

2.8.4 Determine Functional Phasing (When)

In order to ensure a smooth transition to the NSSC, it is important that the functional activities migrate at the correct time in relation to their overall functional area and the other functional activities. After the NSSC management structure is in place, the migration of functional activities to the NSSC will commence. Currently the NSSC Implementation Team has identified three 'waves' of functional phasing:

- Initial Operations – October 2003
  - Operational services under the NASA Computing and Communications Services (NCCS) umbrella will be virtually consolidated at this time.
- NSSC Facility Activation – April 2005
  - The NSSC will determine the physical location to house the functional activities initially migrating to the NSSC
- Phased Transition of Activities – April 2005 through October 2007
  - Those functional activities identified as candidates for migration to the NSSC will begin their scheduled migration into the NSSC

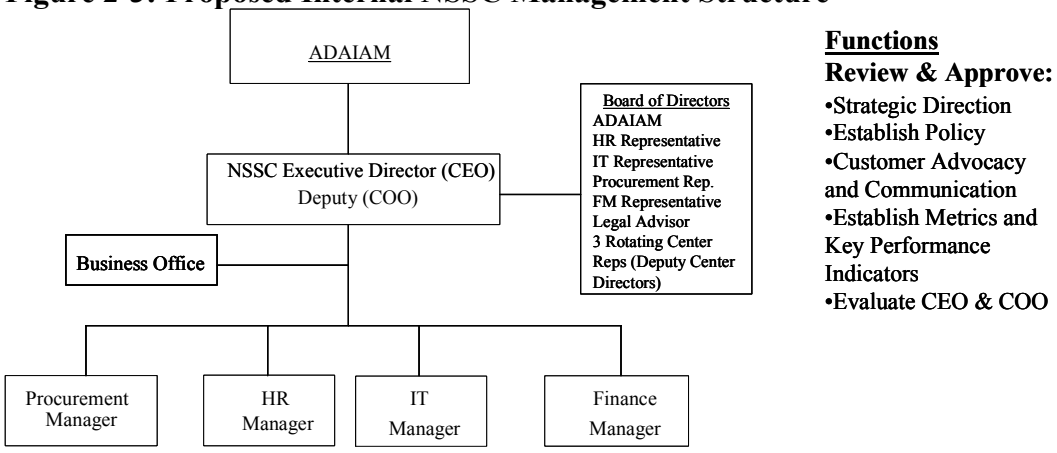
Many of the phasing issues are conditional upon the successful implementation of IFMP. Also, in order to determine into which phasing wave a functional activity falls; the interrelationships between that functional activity and other processes must be fully assessed. To develop a final phasing schedule, the development of workflow processes for the functional processes migrating to the NSSC will be required.

2.8.5 Determine NSSC Structural and Organizational Requirements (How)

In the last phase of the "Clarification" stage, the Implementation Team answered the question "How." Prior to any facet of the Implementation Plan being put into motion, a Competitive Strategy selection is required. Competitive Strategy and long-term continuous performance improvements are important to the Presidents Management Agenda. After careful consideration of the alternatives, the Implementation Team recommends a Direct Conversion/Outsourcing of a significant portion of current functions from civil service to contractor (See Appendix A.6.2 for more on Competitive Strategy).

Another major decision that will affect the NSSC at all phases of its lifecycle is how the NSSC is organized and governed. The following chart is an organization chart for NSSC governance developed by the Implementation Team (See Appendix I for more on Governance).

Figure 2-3: Proposed Internal NSSC Management Structure



Looking forward, the NSSC project must adequately address Change Management (See Appendix A.6.6 for more on Change Management and Communication Strategy) and Risk Management (See Appendix J for more on Risk Management and Critical Success Factors).

The end product of this second stage, "Confirmation", is this Preliminary NSSC Implementation Plan. This Preliminary Implementation Plan will provide the foundation for the third stage, "Clarification".

2.9 Benchmarking

Approach

Throughout the "Confirmation" stage, the Implementation Team conducted benchmarking site visits and meetings to revalidate the original Study Team's conclusions while validating the emerging conclusions from the current "Confirmation" stage. The Implementation Team utilized benchmarking to assess the performance and experiences of other public and private organizations that are implementing or have implemented a shared services environment. The benchmarking visits provided concrete examples of how other shared service organizations are organized and managed. The visits also provided insights into how the organization evolved and into issues that may be encountered over time as well as a plethora of lessons learned.

Activities

The Implementation Team visited the following benchmarking sites: Department of Veteran's Affairs (DVA) Financial Services Center (FSC) & Austin Automation Center (AAC), National Oceanographic and Atmospheric Administration (NOAA) Western Administrative Support Center (WASC), the Department of the Interior National Business Center, the CIA and EDS. The Implementation Team also met with representatives from Computer Sciences Corporation (CSC) and Allied Signal to learn more about their experiences with the implementation and maintenance of a shared services environment.

Lessons Learned

The shared service site visits and meetings provided great insight into valuable lessons learned and potential challenges with implementing and maintaining a shared services environment. A summary of the applicable lessons learned include:

- Leadership and top management commitment is essential
- Understand agency culture and will to consolidate services before beginning
- Working Capital funding is more desirable than direct appropriations
- Shared Service Centers are more stable and predictable, and less sensitive to political needs
- Customer buy-in is essential – they need to see the benefits
- Effective communication is critical to success
- Baseline current functions/process inputs and outputs to provide standards for shared service functions
- Human capital analysis is key throughout the process
- Critical success factors: Cost reduction, process improvement, human capital realignment, and standard processes & procedures
- Potential for future savings as new services are incorporated and continual efficiencies are realized.

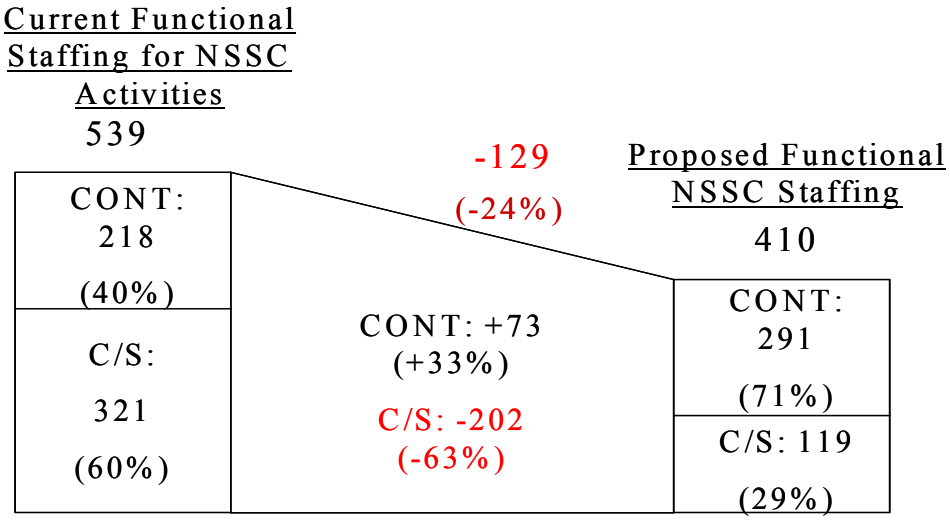
2.10 The Bottom Line

Each of the functional subteams conducted independent analysis of their respective functions and its role in the future NSSC. Below is a summary of the functional findings from the subteams detailed by FTEs and costs.

2.10.1 FTE Analysis

The following table displays the current staffing levels (both Civil Service and Contractors) associated with the functional activities or services that are slated for migration to the NSSC. The table also displays the proposed staffing level for the same functional activities or services in the NSSC Vision.

Figure 2-4: Civil Service and Contractor FTEs in Current State and NSSC Vision (excluding IT Numbers)



Overall the FTEs decrease from 539 to 410, a reduction of 129 resulting in approximately a 24% decrease in total FTEs. The Civil Service to Contractor mix in the current state is approximately 60% Civil Service and 40% Contractors. In the NSSC Vision state, the Civil Service to Contractor mix is approximately 29% Civil Service and 71% Contractors.

The following chart depicts the number of NSSC candidate Civil Service and Contractors by Center compared to baseline figures. Note that IT Civil Service and Contractors are not included since pre-NSSC FTEs were not determined.

Table 2-2: FTEs Available for NSSC Migration and Baseline Figures by Center

	HR, Procurement, & FM NSSC Functions by Center								
	Baseline			FTEs Identified as NSSC Candidates			Percent of Baseline Identified as NSSC Candidates		
Center	CS	Contractor	Total	CS	Contractor	Total	CS	Contractor	Total
ARC	133	42	175	20	24	44	15%	57%	25%
DFRC	48	14	62	7	6	13	14%	46%	22%
GRC	144	72	216	43	26	69	30%	36%	32%
GSFC	342	50	392	71	34	105	21%	68%	27%
HQ	133	44	177	16	15	31	12%	34%	18%
JSC	239	64	303	39	32	71	16%	50%	23%
KSC	161	18	179	22	12	34	14%	67%	19%
LARC	146	36	182	27	20	47	18%	56%	26%
MSFC	229	85	314	68	40	108	30%	47%	34%
SSC	44	13	57	8	9	17	18%	69%	30%
Total	1619	438	2057	321	218	539	20%	50%	26%

* Note that IT data is not broken down by Center.

The following table displays the number of Civil Service and Contractor FTEs in both the present state and the NSSC Vision by function.

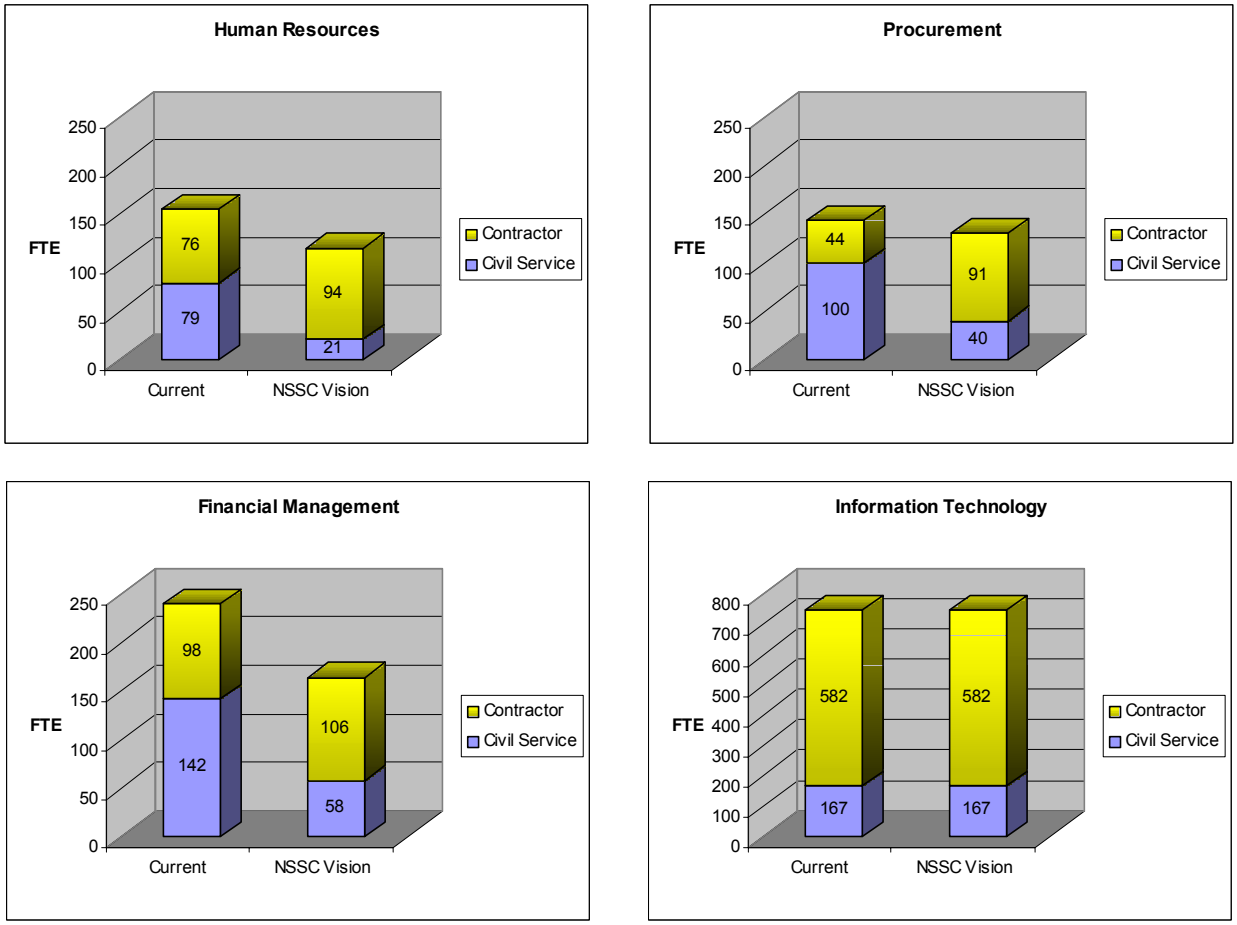
Table 2-3: Comparison of FTEs in Current State versus NSSC Vision by Function

	FTEs Identified as NSSC Candidates			FTEs Forecasted to Perform Functional Tasks at NSSC		
Function	Civil Service	Contractor	Total	Civil Service	Contractor	Total
HR	79	76	155	21	94	115
Procurement	100	44	144	40	91	131
FM	142	98	240	58	106	164
Subtotal	321	218	539	119	291	410
IT	167	582	749	167	582	749
Total	488	800	1,288	286	873	1,159

* Note: Assume IT FTEs remain constant in the Current State and the NSSC Vision

The following set of graphs displays by function the breakdown of Civil Service and Contractors in both the current state and the NSSC Vision:

Figure 2-5: Civil Service and Contractor FTE by Function



2.10.2 Cost Analysis

The Cost Analysis reviewed three main areas: current costs, future (vision) costs and future benefits. The purpose of the analysis was to fully understand how much the NSSC project will cost and how much benefit will be realized. The analysis included:

- Cost for transition and operations of each function
- Associated savings for each function as they transition
- Ten and twenty year net present value (NPV) analyses
- Sensitivity analyses on both labor and non-labor cost elements
- Facility lease analysis in lieu of buying or building new
- Non-recurring costs for facility outfitting, relocation and training

Current costs have been detailed in a baseline developed from the sub-teams' data collection efforts. The baseline describes NASA's current situation and identifies the number and cost of the civil servant and contractor personnel currently performing the functions recommended for transition to the NSSC. Housing and IT desktop related services were included in the analysis.

Vision requirements describe the projected level of resources required at the NSSC at the end of stabilization for the functions currently identified for transition. The forecast also takes into consideration current contract mechanisms and the potential of contract termination costs.

The results of the overall analysis show that the creation of the NSSC is the most economical approach for performing the functions proposed to be consolidated. The analysis indicates a short 3.6-year discounted payback period with annual savings starting to accrue in FY2006. Annual cost savings of approximately $6.6M are projected for FY2010 and beyond. The consolidation of procurement, financial management and human resources will result in a workforce reduction of about 24% from the current levels. No savings is being projected for IT at this point (See Appendix A.6.3 for a detailed explanation of the cost analysis).

2.11 Conclusion

The implementation of the NASA Shared Services Center will provide NASA with a wide array of tangible and intangible benefits from improved services at lower costs and performance efficiencies to the support of "One NASA" and the PMA. In addition, the NSSC will act as a catalyst in the promotion of strategic management of NASA resources while it offers more opportunities to develop synergies across functional areas. The NSSC will enable NASA to continually review and re-engineer critical processes in order to constantly improve services provided Agency-wide. The Implementation Team recommends that NASA aggressively pursue the implementation of the NASA Shared Services Center.

The NSSC Implementation Team reviewed six functional areas within NASA including: Human Resources, Procurement, Financial Management, Resources Management, Information Technology, and Facilities. Within these six functions, the Implementation Team recommended a significant number of functional activities or services for transition to the NSSC. Then the Implementation Team developed an NSSC migration schedule that highlights the various stages of the NSSC Implementation. The NSSC Implementation Team also developed an NSSC governance structure and will recommend a NSSC facility location to the Executive Council.
NASA can improve business service effectiveness and efficiency by consolidating key business and technical services into a shared services environment. The NASA Shared Services Center should be implemented in order to promote these and other Agency and government management improvements. The NSSC will also promote continual Agency performance and process improvements across the Agency while maintaining a stronger focus on core mission. These along with cost savings, increased services, promotion of "One NASA" and supporting the PMA support the NSSC Implementation Team's recommendation to aggressively pursue the implementation of a Shared Services Center for NASA.

Appendices for NSSC Preliminary Implementation Plan

Appendix A: Methodology

The following is a discussion of the methodology used throughout the implementation of the NSSC. These details of the methodology support the highlights from the main text.

A.1 Feasibility: Determine that a Shared Services Center is Feasible and Merits Further Investigation

The CBS Study Team completed the "Feasibility" stage. The end product was the Study Team Report entitled "Consolidated Business Services: A New Opportunity for Better Services" dated March 2002.

A.2 Confirmation: Confirm that it is Viable to Implement Shared Services

A.2.1 Determine Functions To Be Included in NSSC (What):

Activities in this stage were directed at identifying which functional processes, activities and tasks are candidates for transition to the NSSC. The "Confirmation" stage will also identify those functional processes, activities and tasks that should remain at the individual Centers. Using the initial Study Team Report as a starting point, the Implementation Team reviewed six functional areas: Human Resources (HR), Financial Management (FM), Procurement, Information Technology (IT), Resources Management (RM), and Facilities. Subteams of subject matter experts in each of the six functional areas were assembled from across the nine NASA Centers and Headquarters. Each subteam was tasked to:

- Identify functions performed at all Centers and facilities
- Establish a Baseline of current and future costs and resource requirements
- Categorize current functions into "Services to be Consolidated", "More Study Needed" or "Services Remaining at Centers"
- Identify phasing and interdependencies/qualifiers for implementation

To perform the tasks, most subteams created templates to standardize the data collection efforts. In addition to the quantifiable data, most subteams collected qualitative data such as functional predecessors and interdependencies to assist them in the decision making process. After the data was collected, it was then reviewed, revised, and normalized. This functional data was then used to help determine which of the functional activities or services under review would pose as good candidates for transition to the NSSC. Cost and resource profiles for each function were also created. Subteams collected quantitative data such as Civil Service and Contractor FTEs along with associated salary data. In order to determine approximate staffing levels in the NSSC vision state, the subteams also developed future costs and resources profiles for those functions to be consolidated

A.2.2 Determine Site (Where)

A.2.2.1 Approach

Site selection is one of most important variables when setting up a Shared Services Center. First, various alternative approaches to site selection were considered and discussed by the Implementation Team. These alternatives included (1) an immediate unilateral determination of

the site by NASA senior management (i.e., Administrator or Deputy Administrator); (2) some form of competition between those NASA centers interested in sponsoring or hosting the shared services organization; (3) a multi-tiered evaluation of NASA and non-NASA sites using existing demographic, workforce, cost and other data, followed by an Implementation Team recommendation and Code A decision of the site; or, (4) site selection based upon the results of a public-private competition or the private-sector commercial competition of the shared services support service contract.

Alternative 1 — As to the first alternative, the Implementation Team concluded that all the information necessary to make a fully informed decision had not been collected and evaluated by the CBS Study Team or by the initial activities of the Implementation Team. While delaying the final site selection decision slightly, the collection and evaluation of relevant data and site recommendation by the Team reserves to the Administrator (or his designee) full authority to make a site selection decision based upon a complete set of objective data and in consideration of other relevant legal, policy and/or programmatic considerations.

Alternative 2 — Based upon Implementation Team discussions, debriefings provided by certain members of the CBS Study Team and in consideration of the various Agency and Administrative initiatives, the Implementation Team elected not to recommend an inter-Center competition. Part of the rationale supporting this decision was a desire (1) to avoid any actions that would appear to create a "winner" and "loser" between Centers relative to shared services, (2) to reinforce the concept of “One NASA”, and (3) to obtain the location providing the highest benefit to NASA, the U.S. Government, and the taxpayers as a whole. Furthermore, it was the opinion of the Implementation Team that virtually all, meaningful discriminators between candidate sites were reasonably identifiable and capable of full evaluation based upon existing objective demographic and cost data. Inasmuch as the shared services organization will function independently from any NASA Center, the Implementation Team also opined that it was unnecessary to obtain the various centers' spins on the available objective data.

Alternative 3 — An objective decision founded on a full evaluation of relevant, objective data and Implementation Team recommendation provides the best and most defensible basis for the Agency's determination of its shared services site. As such, the Implementation Team gathered the necessary demographics, including labor, cost and other relevant data on each candidate site.

Alternative 4 — While a decision to allow the shared services site to be based upon the outcome of a subsequent public-private or a full-and-open commercial competition does allow commercial service providers the greatest latitude in proposing cost or work efficiencies which may be contingent upon siting work at existing company locations or possibly in lower cost areas than those considered in the Implementation Team's evaluation, that approach would eliminate (or severely limit) NASA's ability to consider all the multifarious factors and policy considerations associated with a site determination. Based upon our current implementation schedule, it would also unreasonably delay the site selection until late Summer 2004 (the projected source selection decision) and could severely hamper the Agency's ability to relocate a portion of its existing workforce or otherwise recruit additional employees for such unknown locations.

Based upon the above and other considerations, the Implementation Team chose to implement Alternative 3 in the quest to determine a physical location for the NSSC.

A.2.2.2 Site Options

There are three main options for the site location, onsite at a NASA field Center, off-site with options near a NASA field Center and open competition. Each option has distinct pros and cons, and would require different approaches to reach completion. The following pros and cons, analyze some of the additional, general criteria considerations that could influence a decision, in addition to the four major criteria options.

Table A-1: Pros and Cons of Site Selection Options

Site Selection Option	Pros	Cons
Onsite at a NASA Field Center	■ Available land to build if required ■ Facility may not have to be built ■ Physical security requirements satisfied ■ Links NSSC to overall NASA mission by virtue of co-location (only relevant if chosen site hosts a "core" NASA mission) ■ Local knowledge – cost of labor, living, quality of life etc. ■ Accessibility options are known	■ Concern/appearance of Linking of NSSC to one particular NASA Center ■ Difficult to establish NSSC as an independent Center of Excellence ■ Difficult to establish and enforce new, improved processes – tendency to migrate processes from the NASA Center, or other centers have the perception this is the case ■ Availability of labor – a different skill mix would be required for the NSSC, the fact there is a current NASA Center does not guarantee a suitable labor pool, or a cost efficient labor pool ■ Labor may not be at the lowest cost ■ Time required to plan, advocate, and build ■ No facility currently available
Offsite with Options Near a NASA Field Center	■ Retains some links NSSC to overall NASA mission ■ Local knowledge – cost of labor, living, quality of life etc. known ■ Accessibility options are known ■ Easier to establish and enforce new, improved processes – some tendency to migrate processes from the close NASA Center ■ NSSC would be seen as more of an *independent* Center of excellence	■ No guarantee of available land to build if required ■ Physical security requirements need to be implemented ■ Less concern/appearance of "going native" ■ Linking of NSSC to one particular NASA region ■ Availability of labor – a different skill mix would be required for the NSSC, the fact there is a current NASA Center nearby does not guarantee a suitable labor pool, or a cost efficient labor pool ■ Labor may not be at the lowest cost ■ Current accessibility options may be less than satisfactory ■ Facility may still have to be built or leased
Open Competition	■ Land will be available ■ Very easy to establish and enforce new, improved processes – some tendency to	■ No benefits of co-location for overall mission ■ Local knowledge – cost of labor, living,

Site Selection Option	Pros	Cons
	migrate processes from the closest NASA Center ■ NSSC would be seen as an *independent* Center of excellence No concern with appearance of "going native" ■ Reduced chance of linking of NSSC to NASA region or site ■ Ability to choose site(s) where labor will be readily available and inexpensive ■ Site will be chosen with optimal accessibility options	quality of life etc. not known ■ Physical security requirements need to be implemented ■ Accessibility options are not known ■ Current accessibility options may be less than satisfactory ■ Facility will have to be built or leased

A.2.2.3 Selection Criteria

The Implementation Team consulted with representatives from existing shared services organizations and start-up activities and reviewed published literature on shared services organizations to determine evaluation areas and criteria important to the success of such endeavors and those used in siting the shared services organizations. Afterwards, the Implementation Team identified broad evaluation areas and lower-level criteria. To ensure these were most meaningful, the final areas/criteria were further refined and finally weighted concurrently with the Team's determination of included shared service activities and related human capital and facility requirements. The functional subteams developed human capital requirements for Civil Service and estimates of requirements for contract support. Following these functional subteam projections, the projected labor requirements (in full time equivalents (FTE) for civil service and work year equivalents (WYE) for contractors) were used to project the labor costs and workplace housing requirements at each of the candidate sites. Facility requirements included number of FTE's/WYE's, equipment space requirements, the size of the facility, the outfitting requirements, and IT and regular security constraints. The requirements of the facility were also used to develop the facilities cost projections contained in the cost analysis. Travel accessibility was evaluated using existing commercial carriers, airports, hotel accommodations, and the associated published costs at each location.

Consistent with the approach described in Alternative 3, the following evaluation areas and their included criteria were selected:

- Ability to attract and retain qualified workforce
  - Quality and skill of available labor pool in each geographic area
  - Education and training of existing labor pool and feeder systems (e.g., academic, trade and technical training programs)
  - Diversity within the workforce and community
  - Unemployment rates
  - Quality of life (EASI quality rating, cost of living/housing, taxation, medical services, education, cultural and other entertainment, crime rate, etc.)

- Cost of labor/employees
  - Applicable DOL wage rates under Service Contract Act
  - Projected salary rates for exempt professional and managerial workforce
  - Applicable civil service general schedule locality rates
- Availability and cost of facilities
  - Availability, compatibility and cost of government facilities
  - Availability, compatibility and cost of commercial facilities
  - IT and Comm. Infrastructure
  - External Infrastructure and local accessibility (e.g., roads, public transportation, parking)
  - Outfitting and activation costs
- Accessibility relative to non-local travel
  - Distance to hub/major airports
  - Cost and quality of service (facility, number of direct and other flights, impact of delays, etc.)
  - Available hotel accommodations and meeting facilities
  - Hotel and other per diem costs
- Other considerations
  - Congressional districts
  - Rural Development Act
  - National Environmental Policy Act considerations and procedures

The selection criteria were summarized into five evaluation areas for ease of understanding and communication. The five areas selected include:

- Human Capital/Workforce (W/F)
- Cost of Labor/employees
- Real Estate/facilities
- Accessibility
- Other considerations

This final group of criteria will be used to judge the suitability of each proposed site. In addition, for purposes of the final evaluation, the relative weighting was applied to the evaluation areas to indicate their relative importance as between the candidate sites. Due to strong ability of each of the final candidates to supply a well-qualified pool from which to draw our and our contractor's (s') workforces, a weighting of 25% was applied to the area of "Available Qualified Workforce." This was primarily driven by the reduced effect of this Area as a discriminator between the remaining candidate sites. If however, additional sites with a reduced pool of workforce are to be evaluated, the importance of this Area will need to be re-evaluated. As to the Areas of "Cost of Labor/Employees" and "Availability and Costs of Facilities," they were each weighted 30%. Finally, the areas of "Accessibility" and "Other Considerations" were weighted 10% and 5%, respectively. While there are slight differences in "Accessibility" between some of the sites as to cost and ease of accessibility, consideration of these does not provide a meaningful discriminator in the overall context considering the benefits and attributes of the sites as to workforce, facility and their associated costs. On the other hand, while the Area of "Other Considerations" was only weighted 5% for purposes of the Team's evaluation, it is recognized that certain noted or other policy, programmatic and political considerations may play a more significant role in the Agency's overarching decisions on shared services. The objective data and evaluation by the

Implementation Team, together with any such programmatic and policy considerations, will better enable a fully informed decision.

A.2.2.4 Site Selection Candidates and Evaluation Process

Geographic and population demographics, projected costs and other data were collected for all NASA sites. In addition, six additional sites not adjacent to a NASA center were selected for evaluation as potential sites for NASA's shared services organization.

At the outset, data was collected on all NASA centers and most of its other facilities (e.g., Wallops, IV&V, WSTF). In addition, six other locations were selected for evaluation and comparison of benefits against the NASA sites. These non-NASA candidate sites were selected based on various factors, including low cost of labor; large, qualified workforce and education/training programs; proximity to hub/major airports; reasonably priced, commercially available office facilities; and, consideration of other legal and policy considerations noted in the criteria. In review of published literature and discussions with existing shared services organizations, many of these same sites were considered and some selected by others for their share services operations based on similar considerations. In an effort to avoid impacts from parochial interests, the Implementation Team decided that, at this juncture, neither it nor its members (in their official capacity) would make or encourage any contacts with community, business or economic development organizations; chambers of commerce; state space authorities; or local, state of federal politicians in an effort to determine potential incentives relative to siting the shared services organization.

Each prospective site will be measured against the above criteria to identify and recommend to the Executive Council those site selection candidates with the potential to provide a successful NSSC host site. NASA will then make a final decision.

A.2.2.5 Next Steps

Before the site is finalized the National Environmental Policy Act process will have to be completed. The analysis required will be an Environmental Assessment at a minimum. Due to the overall scope of the NSSC project, an Environmental Impact Statement, including the requisite public process may have to be completed.

A.2.2.6 Conclusions

The Implementation Team recognizes that in addition to the evaluated data, other policy, programmatic and political considerations must be factored into their recommendation for the NSSC site selection.. The Implementation Team also recognizes that determination of competitive strategy could impact site selection decisions.

A.2.3 Determine Functional Phasing (When)

In order to ensure a smooth transition to the NSSC, it is important that the functional activities migrate at the correct time in relation to themselves and the other functional activities. After the NSSC management team is in place, the NSSC will begin the functional phasing of the NSSC activities. Currently the NSSC Implementation Team has identified three ‘waves’ of functional phasing:

- Initial Operations – October 2003

- Operational services under the NASA Computing and Communications Services (NCCS) umbrella will be virtually consolidated at this time.
- NSSC Facility Activation – April 2005
  - The NSSC will determine the physical location to house the functional activities initially migrating to the NSSC
- Phased Transition of Activities – April 2005 through October 2007
  - Those functional activities identified as candidates for migration to the NSSC will begin their scheduled migration into the NSSC

Many of the phasing issues rest on the successful implementation of IFMP. Also, in order to determine into which phasing wave a functional activity falls, the interrelationships between that functional activity and other processes must be fully assessed. An important event that must take place prior to developing a final phasing schedule is the development of workflow processes for the functional processes migrating to the NSSC. A more detailed discussion of these workflow process mappings may be found in the Business Operations section.

A.2.4 Determine NSSC Structural and Organizational Requirements (How)

In order to determine how the NSSC will be structured and operated, the following steps were identified:

- Determine how the new organization will be governed
- Develop an NSSC Charter
- Develop composition of Board of Directors for the NSSC
- Identify fiscal and regulatory issues that need to be observed
- Determine the composition and selection criteria for the NSSC Executive
- Develop a financing strategy
- Establish how the new entity will be led, managed and structured (organization)

The end product of Stage Two is the Preliminary NSSC Implementation Plan (this report). This Preliminary Implementation Plan will provide the foundation for the third stage, "Clarification'.

A.3 Clarification: Develop an Implementable and Viable Solution

The next stage in the NSSC methodology is the "Clarification" stage, which will occur from February 1, 2002 thru July 31, 2002. Two primary focal points of this stage are the development of a comprehensive Human Capital Strategy and a Business Operations Strategy. The Human Capital Strategy addresses the sensitive issues surrounding the impact on the people of NASA. The Business Operations Strategy focuses on the following aspects: developing workflow processes, addressing infrastructure outfitting requirements, the NSSC structural and organization requirements and service level agreements. The comprehensive development of both of these strategies is critical to the success of the NASA Shared Services Center.

A.3.1 Human Capital Strategy

A.3.1.1 Approach

The Human Capital Strategy (HCS) addresses the "people" portion of the Implementation Plan. The success of the NSSC will depend upon appropriate levels of retention of current civil service

and contractor workforce; appropriate new staff levels; transition support to the new environment; and the minimization of impacts on civil service workforce not transferring to the NSSC. The approach that will be used to develop the Human Capital Strategy follows

- Staffing Requirements
  - Develop comprehensive staffing plan for NSSC
    - Identify positions/grade levels
    - Develop timeline for filling positions
  - Assess current competencies in the existing workforce
  - Determine interest of current civil servants in moving to NSSC.
  - Identify and communicate opportunities available at the NSSC
  - Develop relocation strategy
  - Assess labor relations/ union factors

- Training Requirements
  - Determine training needs for the NSSC and Center staffs for transition to shared service environment

- Develop tools for Centers concerning Workforce Issues
  - Each Center will be responsible for developing a plan for affected civil servants remaining at the Centers. The Implementation Team will provide tools for use by the Centers:
    - Anticipated levels of attrition
    - Use of targeted early retirement and/or buy-out strategies
    - Retrain and reassign remaining employees

A.3.1.2 Initial Findings

Approximately 325 civil servants will be impacted by the creation of the NSSC. The Implementation Team supports the concept of no adverse impact to current civil servants, (i.e. No involuntary relocations and no involuntary separations/downgrades).

- Plan for affected civil servants
  - Opportunities available at the NSSC -- both Civil Service and Contractor
  - Normal attrition will occur
  - Early out/buyouts should be made available
  - Remaining employees will be retrained/reassigned to existing work at their Centers or another NASA Center
- Willingness to relocate to NSSC dependent upon:
  - Location/cost of living/locality pay in the area
  - Incentives available: Relocation bonuses, PCS costs
  - Grades Offered
  - Career paths available

A.3.1.3 Next Steps

Fully develop the HCM strategy and plan throughout the "Clarification" stage of the NSSC methodology.

A.3.1.4 Conclusions

The development of a basic Human Capital Management Strategy is currently underway. A comprehensive Human Capital Strategy will be fully developed in this "Clarification" stage of the NSSC methodology.

A.3.2 Business Operations Strategy

The business operations strategy also identifies the approach for developing workflow processes, developing performance metrics, addressing infrastructure outfitting requirements, the NSSC structural and organization requirements and service level agreements.

- Development of process maps for each functional activity migrating to the NSSC
  - Assess functional phasing by determining interrelationships between other processes via SIPOC diagrams
- Development of performance metrics to gauge level of success
- Infrastructure outfitting requirements
  - Determine activation cost for IT (telephone systems, call centers, IFMP, servers, e-mail, web, etc.)
  - Consider other infrastructure requirements (internal admin, functions)
- Determine NSSC Structural and Organizational Requirements
  - Financing Strategy
  - Acquisition Strategy
  - Determine functional business process changes needed for NSSC
- Service Level Agreements
  - Determine what the new organization is expected to provide to each of its customers
- Assess level of cost reduction and improvement in quality of service for each function

A.3.2.1 Activities

A major part of a Business Operations Strategy lies in defining processes and activities. These processes and activities are essential to understand in order to properly sequence the candidate functional activities for migration to the NSSC. Functions that are candidates for migration have complex interrelationships with other functions and other entities - both internal and external. The IFMP project phasing has great influence on when various functional activities and services may migrate to the NSSC. The approach to determining interrelationships is to closely define, *suppliers* and their inputs to the process, and the output of the process and to define the *customers*. This will enable process interrelationships to be maintained and enable the least disruptive phasing sequencing.

The Implementation Team will use a process mapping protocol known as Supplier-Input-Process-Output-Customer (SIPOC) diagrams and to develop their functional processes and summarize the data that has been collected. The SIPOC diagrams will summarize process interrelationships, focusing on Inputs and Outputs, where the data comes from, and where it is directed. In addition the following data elements will be reviewed:

- Frequency of process
- Duration of process
- Metrics and Key Performance Indicators
- Supporting Applications

The importance of understanding process interrelationships becomes evident when processes transition to the NSSC. All suppliers and customers must be aware of the transition, and critical data items must not be overlooked. The SIPOC serves as a summary tool to track all elements of the transitioning process. In order to fully understand the interrelationships between processes within a function, as well as the interrelationships across functions, each functional area should develop SIPOC diagrams for each of the processes that have been identified as NSSC Candidates. The SIPOC Diagrams developed for the NSSC Candidates may be found in Attachment #2.

A.3.2.2 Next Steps

In order to proceed with a smooth transition to the NASA Shared Services Center, it is crucial to develop the comprehensive plans for both Human Capital Strategy and Business Operations Strategy.

A.3.2.3 Conclusions

At the conclusion of the third stage "Clarification" scheduled for July 2003, the Implementation Team will have the Final NSSC Implementation Plan and Schedule. This Final NSSC Implementation Plan will be an extension of the Preliminary NSSC Implementation Plan and will provide a detailed guide for how to successfully implement the NASA Shared Services Center.

A.4 Implementation: Implement Operational Change Effectively

As mentioned previously, the current initial operations date for the NSSC is October 2003 followed by the proposed NSSC facilities activation date of April 2005. Though the Team has a detailed Implementation Plan, the NSSC will realize its potential only if the ensuing operational change is successfully managed. In order to ensure a smooth transition from NASA's current business model to the NSSC, the Team must anticipate issues and obstacles that will inevitably arise throughout the Stages of the NSSC. These potential risks and challenges must be adequately addressed in a mature transition strategy prior to the startup of the NSSC.

A.5 Transformation & Stabilization: Stabilize Change and Identify and Implement Continual Process Improvements

During the "Transformation & Stabilization" stage a future NSSC Team will stabilize change and implement continual improvements and process re-engineering. Paramount to the success of the NSSC will be a commitment to proactively improve services and to pursue additional candidates for transition to the Shared Services Center. The NSSC will be dedicated to assessing, enhancing, and continually improving the delivery of shared services to its customers. The NSSC will investigate, develop, and partner transition and cross-functional integration opportunities on a continuous basis by applying process re-engineering and systems engineering methods to operating units to develop a scope of work for the integration initiative. Throughout the "Transformation & Stabilization" stage, the NSSC will continuously assess and benchmark internal processes to look for ways to improve services.

A.6 Overarching Activities

There are a number of activities that do not fit into a single stage in the lifecycle of the NSSC. Rather, these activities take place throughout the entire project and support the overall concept of the NSSC. These activities include:

- Benchmarking
- Competitive Strategy
- Cost Analysis
- Implementation Team Project Management
- Implementation Team Scheduling
- Change Management

A.6.1 Benchmarking

Benchmarking provides insights into other organizations' shared services operations. Benchmarking is used to assess the performance and leverage the experiences of other organizations as they move towards a shared services environment. Benchmarking provides real examples of organizations, to review how they are set up, how they are managed, what lessons they learned and what things they would have done differently were they to repeat the process. Several site visits were arranged to government and private sector organizations.

The key objectives of the site visits is to understand the following questions:

- Why did the organization implement Shared Services (SS)?
- What functions were transferred to SS?
- How long did implementation take from start to finish?
- What were the issues associated with implementation?
- What influenced the site selection?
- What is the governance structure?
- How did the organization deal with change management?
- What was the actual versus forecasted payback?
- What were the lessons learned?
- What metrics were used to measure performance?
- How is the organization funded?

Throughout the benchmarking visits, a number of core themes emerged from the different organizations currently hosting a shared services environment. Some of these themes found in successful shared services environments are as follows:

- Focus on the customer's needs
- Develop performance metrics in order to gauge future performance
- Develop SLAs in order to assure and maintain service quality
- Project buy-in from top level management is critical for success

A.6.2 Competitive Strategy

Competitive Sourcing, whereby Federal agencies subject commercial activities performed by government personnel to the forces of public-private competitions, is one of the five pillars of the President's Management Agenda. The determination of the most effective acquisition approach to pursue for the NSCC is a key step to the overall implementation of the NSSC, since the chosen option will impact how the process will proceed.

A.6.2.1 Competitive Strategy Options

Initially, the Implementation Team developed four potential approaches achieving the goals of Competitive Sourcing, focusing on the pros and cons of each method. The four scenarios that represent the most viable options were:

- Combining the current NASA civil service resources identified by each subteam's recommendations at one NASA location.
- Direct conversion of the functions performed by current NASA civil service resources, except for inherently Governmental positions, to contractor, as envisioned by the Study Team Report.
- OMB Demonstration Project for new FAR Part 15 approach to A-76. This scenario would be use best value, as opposed to lowest cost, evaluation criteria. Additionally, the Government team's proposal would be handled as just another offer, with no guarantee Government proposal would even make the competitive range.
- Formal A-76 process.

After a detailed analysis of the pros and cons of each option was performed, the selection was narrowed down to the two most effective approaches:

- Direct conversions of current NASA civil service resources, except for inherently governmental positions, to contractor
- OMB Demonstration Project for new FAR Part 15 approach to A-76

Concurrent with the Implementation Team's competitive strategy review, OMB published a draft revision of Circular A-76, Performance of Commercial Activities. The revised policy, which should become effective in early February 2003, added a notification requirement onto the direct conversion approach and formalized the scenario the Implementation Team had previously described as the OMB Demonstration process.

A.6.2.2 Competitive Strategy Decision

After considerable deliberation, the Implementation Team recommends the direct conversion approach. Under this scenario, almost all of the NSSC functions would be determined to be commercial activities, expect for the Inherently Governmental work. The Government would conduct a competitive source selection among commercial contractors. This scenario assumes there would be no adverse actions, which, due to the number of FTE affected, is a requirement under the OMB Competitive Sourcing Guidance for direct conversions. The direct conversion approach would allow the Agency to get Competitive Sourcing credit from OFPP. Moreover, the direct conversion approach would eliminate the need for adverse action to employees, e.g. reduction in force (RIF). Additionally, it avoids some expenses associated with a public-private competition and a RIF. The avoidance of a RIF also minimizes potential for disparate impact of a RIF on diversity accomplishments NASA has achieved over the years.

A.6.2.3 Direct Conversion Process

The Direct Conversion acquisition process should take between 12 and 18 months. To ensure the NSSC meets the Circular A-76 criteria for Direct Conversion, NASA must state that "all directly affected Federal civilian employees within the agency are on permanent appointments and are assigned to comparable Federal positions or voluntarily retire".

The agency official responsible for implementing all commercial activities must certify to OMB that:

- The activity meets one or more of the criteria
- The cost of obtaining the activity from another source is expected to be fair and reasonable
- The activity has not been reorganized or restructured for the sole purpose of performing a direct conversion to avoid the competition requirements of A-76

The Agency then:

- Authorizes the Direct Conversion in a written certification
- Informs the incumbent service providers of the direct conversion
- Makes public announcements at the local level and in FedBizOpps including:
- Agency
- Location
- Resources being converted
- Designation of the responsible agency officials
- Criteria upon which a direct conversion is based

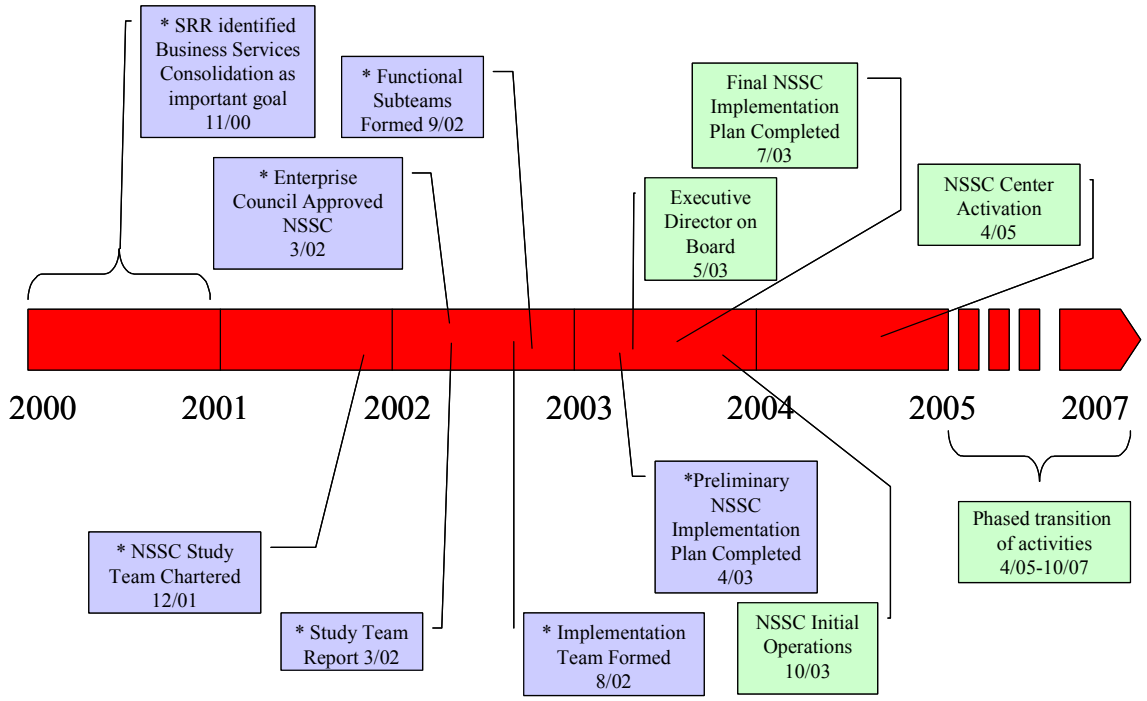
The next stages of the acquisition process are to:

- Determine the acquisition strategy
- Prepare a performance work statement, which will be based on the individual functional requirements
- Issue a draft solicitation, conduct a pre-proposal conference, and then issue the solicitation
- Evaluate offers and determine fair and reasonable prices

A.6.2.4 Time Line

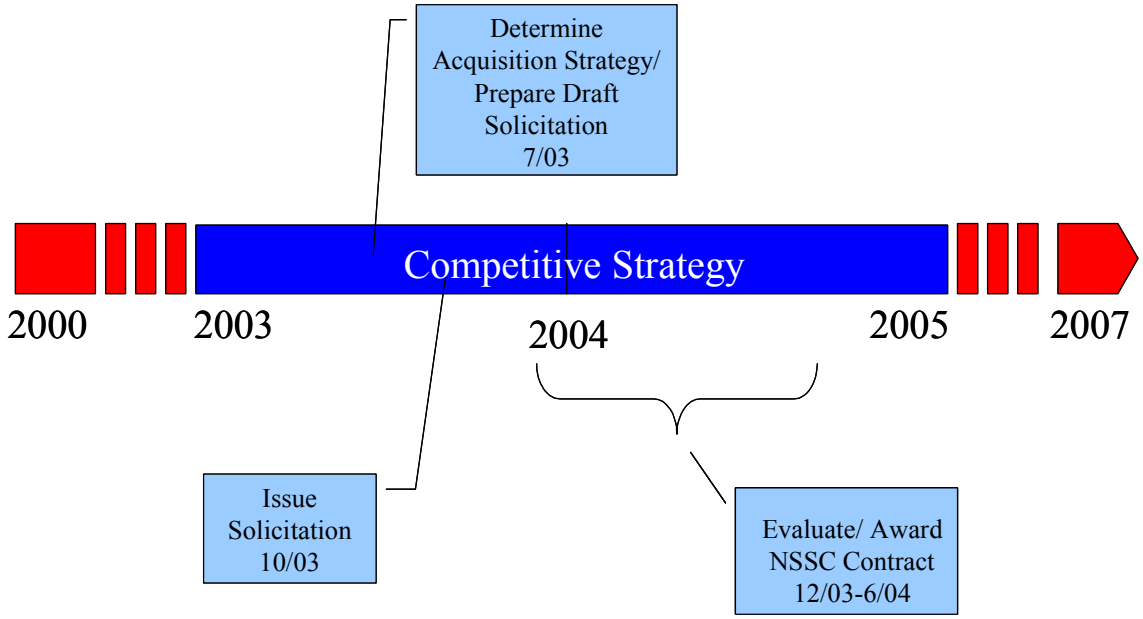
The timeframe of the Competitive Strategy relative to the overall NSSC Project Plan is displayed below.

Figure A-1: Competitive Strategy Relative to Overall NSSC Project Plan



The Competitive Strategy Option of Direct Conversion will adhere to the following timeframe in the context of the NASA Shared Services Center.

Figure A-2: Direct Conversion Timeline



A.6.3 Cost Analysis

The NSSC Implementation Team reviewed six functional areas within NASA including: Human Resources, Procurement, Financial Management, Resources Management, Information Technology, and Facilities. Within four of these functions, the Implementation Team recommended a significant number of functional activities or services for transition to the NSSC. The Implementation Team developed an NSSC migration schedule that highlights the various stages of the NSSC Implementation. The NSSC Implementation Team will also develop a NSSC governance structure, long-term financing strategy, and decide upon the ideal NSSC location.

The initial steps in the Team's analysis of costs were to collect data for the Current level of effort for those sub-functions identified to transition to the NSSC and to develop estimates for our Vision of the new entity. The following chart depicts the annual cost savings in aggregate salaries and benefits for civil servants and contractor costs by function. The chart also contains the forecasted total annual cost for the NSSC Vision and projected savings. Both sets of data include housing and IT operational costs.

Table A-2: Total Functional Cost Analysis for Human Resources, Financial Management, Procurement and IT Functions

(FY02K$)	Total Annual Cost for NSSC Candidate FTEs in Current State			Total Annual Cost for FTEs in the NSSC Vision			Dollar Savings (+) or Dollar Loss (-) from Current State to NSSC Vision		
Function	Civil Servants	Contractors	Total	Civil Servants	Contractors	Total	Civil Servants	Contractors	Total
HR	$6,401	$6,312	$12,713	$2,078	$7,766	$9,844	$4,323	-$1,454	$2,869
FM	$10,690	$7,261	$17,951	$5,128	$8,262	$13,390	$5,562	-$1,001	$4,561
Procurement	$8,784	$3,849	$12,633	$3,967	$7,384	$11,351	$4,817	-$3,535	$1,282
Subtotal	$25,875	$17,422	$43,297	$11,173	$23,412	$34,585	$14,702	-$5,990	$8,712
IT*	$16,790	$106,913	$123,703	$16,790	$106,913	$123,703	$0	$0	$0
Total	$42,665	$124,335	$167,000	$27,963	$130,325	$158,288	$14,702	-$5,990	$8,712

* Information Technology requirements remain constant

The implementation of the NSSC will result in a net cost savings for civil service salaries and contractor costs. The number of Civil Service FTE's associated with HR, FM and procurement will decrease from 321 to 119, a decrease of approximately 63% as the result of shifting non-inherently Government activities to the contractor. Contractors will increase from 218 to 291, an increase of approximately 33%. Overall the total number of FTE's will decrease by approximately 24%. This portion of the cost analysis indicates that the NSSC will save approximately $8.7M a year in salaries and associated costs.

Each of the sub-teams also developed a phasing plan by fiscal year, delineating when functions will transition to the NSSC. The plans are based on site availability and dependence on IFMP for HR, FM and Procurement. The transition for these areas will begin in FY2005 and end in FY2007. The management of IT will transition to the NSSC site in FY2005, with the majority of the activity remaining at MSFC and being managed on a virtual basis starting in FY2004. It is anticipated that IT will generate a savings as the Agency moves towards more Agency-wide systems. These savings will be re-invested near term, accelerating the Agency's transition through NSSC stabilization. Subsequent savings can be re-directed to Agency priorities.

A.6.3.1 Assumptions

Assumptions used to complete the net present value analysis:

- Transition labor costs for those civil servant employees whose positions have transferred is assumed to be covered in the Center G&A budgets for one year after the transfer of their responsibilities and are therefore not included in the primary cost analysis
- Ten percent of the civil servant positions at the NSSC will be filled by current employees transferring to the new site to assist in start-up and training
- Twenty percent of the contractor positions at the NSSC will be filled by existing contractor employees from across the Agency who will also aid in the transition
- Ten additional civil servants will spend six months at the site during the transition
- Transition and stabilization will be complete in FY2008
- Retirements and attrition for those civil servants affected by the transition will occur at the Agency projected average rate for each function. Earlyouts and buyouts are not factored into the analysis
- IT requirements will be the same for both the Current and Vision options
- The facility will be located at a neutral site. It will be leased and will be sized for 500 civil servants and contractor personnel. Leased costs are based on information provided by the GSA
- The NSSC will initially require an internal support team of twelve people
- Outfitting costs are estimated to be $5m for furniture, specific IT, utility and security requirements

The following estimating factors were used to quantify the cost of existing civil servants and contractors that are expected to transfer to the NSSC site, as well as costs associated with training at the NSSC and to re-train those civil servants whose work has transferred. The costs included in both the Current and the NSSC Vision includes allowances for housing and IT related costs. Those costs do not include an estimate for supplies and materials. Thus, a factor was developed based on input from the Centers. Since the Current scenario assumes a new leased facility, a factor was required to remove the housing costs included in the Current and Vision to prevent over stating these costs.

Figure A-3: Cost Estimating Factors

	(Costs in FY02$)
CS % Relocated to NSSC	10%
Contractors % Relocated to NSSC	20%
CS Relocation Expense/FTE	$12,000
Contractor Relocation Expense/FTE	$12,000
Housing $/FTE in Labor Totals	$5,360
Materials/Supplies/FTE	$2,000
Training - CS at NSSC	$3,500
Training - Contractor at NSSC	$3,500
Training - CS Transition at Center	$5,000

Figure A-4: Cost Estimating Factors (Continued)

	FY05	FY06	FY07	
Labor Stabilization Factor	10%	8%	5%	(percentage of CS/Contract FTEs retained to support the NSSC above the projected Vision totals)

Retirement/Attrition Rates for Transferred Functions

% of Current FTE	FY04	FY05	FY06	FY07	FY08	FY09
Procurement	5.7%	6.2%	6.5%	6.3%	6.5%	6.5%
Finance	3.3%	3.5%	3.5%	3.8%	3.9%	3.9%
Human Resources	7.3%	7.7%	7.7%	8.0%	8.0%	8.0%

A.6.3.2 Labor Assessment

The overall baseline, current activities identified for consolidation and the NSSC Vision are summarized in the following table. Since only an IT Vision was developed, the same levels were used for both the current state and the NSSC Vision. New requirements for the NSSC business office and security at the NSSC site are also included.

Table A-3: NSSC Personnel Summary

	Baseline			FTEs Identified as NSSC Candidates			NSSC Vision		
Functions	Civil Service	Contractor	Total	Civil Service	Contractor	Total	Civil Service	Contractor	Total
HR	390	179	569	79	76	155	21	94	115
Procurement	846	96	942	100	44	144	40	91	131
FM	384	163	547	142	98	240	58	106	164
Subtotal	1,620	438	2,057	321	218	539	119	291	410
IT*	838	3,695	4,533	167	582	749	167	582	749
Business Office	0	0	0	0	0	0	12	0	12
Facility Security	0	0	0	0	0	0	0	10	10
Total	2,458	4,133	6,590	488	800	1,288	298	883	1,181

* Information Technology requirements constant across any alternative

The summary below provides the percent of reduction estimated for each of the three primary functions. The first set of data reflects the percent of civil servant and contractor positions (current) identified as candidates to transfer to the NSSC as a percent of the total overall baseline. On average, 26% of the existing workforce is considered to be candidates. The second set of data displays the estimated reductions that can be realized by consolidation. The Team is estimating that on average, the work can be performed with 76% (24% fewer) of the workforce currently performing those functions.

Table A-4: NSSC Personnel Comparison

	NSSC Candidates as a Percentage of Baseline			Percentage of Current FTEs Needed to Staff NSSC		
FTE	**Civil Servant**	**Contractor**	**Total**	**Civil Servant**	**Contractor**	**Total**
Procurement	12%	46%	15%	40%	208%	91%
Finance	37%	60%	44%	41%	108%	68%
Human Resources	20%	42%	27%	27%	124%	74%
Information Technology	20%	16%	17%	100%	100%	100%
Total	20%	50%	26%	37%	134%	76%

A.6.3.3 Savings Analysis

The following chart reflects the results of the Team's analysis. There are non-recurring costs included for facility outfitting, relocation, and training. Part of the savings from the transfer of the functions includes a materials/supplies and housing credit. The materials credit is based on the reduction in the total number of total FTEs and the materials costs associated with those FTEs. The housing credit is determined by the reduction in FTEs housed at the Centers multiplied by the average housing cost per FTE. Transition labor which includes the salaries, benefits and associated costs for the civil servants that are displaced as the result of their work being transferred to the NSSC are included separately at the bottom of the table for information only. These costs reflecting the required resources for a period of one year after transfer of responsibilities are not included in the primary analysis. A diminishing level of non-recurring costs continues through FY2009. Annual savings begin to accrue in FY2006 and total savings are assumed to stabilize in FY2010.

Table A-5: NSSC Functional Savings Analysis

(FY02 K$)	FY04	FY05	FY06	FY07	FY08	FY09	FY10	Total
Functional Savings								
Human Resources	$588	$924	$1,138	$2,377	$2,869	$2,869	$2,869	$13,636
Procurement	$478	$119	$330	$713	$1,283	$1,283	$1,283	$5,487
Financial Management	$413	$3,917	$3,495	$3,895	$4,561	$4,561	$4,561	$25,403
Functional Subtotal	$1,479	$4,960	$4,963	$6,985	$8,713	$8,713	$8,713	$44,526
Materials/Supplies Credit	$20	$141	$168	$192	$233	$233	$233	$1,222
Net Center Housing Credit	$96	$1,652	$2,198	$2,481	$2,481	$2,481	$2,481	$13,869
Subtotal Savings	$1,596	$6,754	$7,328	$9,658	$11,427	$11,427	$11,427	$59,617
Less NSSC Vision Costs:								
Facility Lease	$0	$2,335	$2,335	$2,335	$2,335	$2,335	$2,335	$14,011
Outfitting	$0	$1,000	$1,000	$1,000	$1,000	$1,000	$0	$5,000
Relocation	$0	$1,128	$0	$0	$0	$0	$0	$1,128
Training	$0	$1,307	$510	$262	$28	$0	$0	$2,108
Support Office	$770	$1,454	$1,454	$1,454	$1,454	$1,454	$1,454	$9,492
Security	$0	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$6,000
Subtotal NSSC Vision Costs	$770	$8,225	$6,299	$6,051	$5,817	$5,789	$4,789	$37,739
Net Savings	**$826**	**($1,471)**	**$1,029**	**$3,607**	**$5,610**	**$5,638**	**$6,638**	**$21,878**
Transition Labor Impact*	($1,418)	$14,436	$3,357	$1,557	$550	$0	$0	$18,481

* The costs associated with displaced Civil Servant employees for a period of one year after their

A.6.3.4 Economic Analysis Results

Net present value calculations were made for ten and twenty years. The ECONPACK economic analysis tool was used to conduct the analysis. OMB Circular A-94, Appendix C was used as the source for discount rates for the two scenarios. The discounted payback period for the Vision is 3.6 years. The savings-to-investment improves from 5.5 in the ten-year model to 10.8 in the twenty-year analysis due to paying off the non-recurring investments.

Table A-6: Economic Analysis Results

Period of Analysis	Discount Rate	Discounted Payback Period	Savings-to-Investment Ratio
10 Years	3.1%	3.6 Years	5.5
20 Years	3.5%	3.6 Years	10.8

A sensitivity analysis was performed to determine the impact of varying the Vision labor and non-labor cost estimates. The results below indicate that the analysis is very sensitive to labor variations. A decision change in the ten-year analysis of 9.6% for the labor sensitivity analysis indicates that a labor increase of more that 9.6% in the Vision estimates would extend the payback period beyond ten years. More flexibility exists in the twenty-year model. Non-labor costs were not a major driver in the analysis.

Table A-7: Sensitivity Analysis Results

Period of Analysis	Labor Cost Variation	Non-Labor Cost Variation	Decision Change Labor Cost	Decision Change Non-Labor Cost
10 Years	-10%-+20%	-10%-+30%	+9.6%	NA
20 Years	-10%-+20%	-10%-+30%	+12.4%	NA

An additional economic analysis was conducted to evaluate the effect of including the transition labor and associated costs in the Vision estimates. The results showed that the Vision alternative is still the most economical approach for performing the functions proposed for the NSSC. The discounted payback period is extended to 7.3 years and savings-to-investment ratio reduced to 2.8 and 8.1 respectively, in the ten and twenty year analyses. The labor cost sensitivity indicates decision changes if the Vision labor costs increase more than 3.7% over ten years or 8.7% over twenty years.

A.6.3.5 Conclusions

The implementation of the NASA Shared Services Center will provide NASA with a wide array of tangible and intangible benefits from improved services at lower costs and performance efficiencies to the support of "One NASA" and the PMA and promotion of strategic management of NASA resources. The NSSC will save $6.6M per year after FY2009, with a 3.6 year discounted payback period, based on the cost analysis outlined above. The NSSC will also

enable NASA to continually review and re-engineer critical processes in order to constantly improve services provided Agency-wide. NASA can improve business service effectiveness and efficiency by consolidating key business and technical services into a shared services environment. The NASA Shared Services Center should be implemented in order to promote these and other Agency and government management improvements. The Implementation Team recommends that NASA aggressively pursue the implementation of the NASA Shared Services Center.

A.6.4 Implementation Team Project Management

The project management subteam handles all project management activities. This includes scheduling of activities, change management, resource management, risk management, and technical management of contractor support. Program management activities are designed to establish control and oversight of the project, ensure progress is being made, and that issues and concerns can be quickly raised and resolved. Through control and oversight, information is gathered to help ensure decision-makers are aware of program status.

A.6.5 Implementation Team Scheduling

The task of scheduling involves conducting analyses to compare planned performance with actual performance to assist in the successful outcome of the project. To accomplish this task:

- Program baselines are documented and maintained
- Performance is monitored through identification, analysis, and documentation of variances from baselines
- Options and alternate courses of action are developed to mitigate variances
- Project plan is reviewed, analyzed and updated as necessary to reflect any changes

A.6.6 Change Management and Communications Strategy

The goal of change management is to ensure that the organization is prepared, willing and able to change. Change Management is part "art" and part "science" – no one approach will fit the needs of all the stakeholders within NASA, therefore some flexibility in approach will occur to meet specific needs when they occur. Communications is the overarching method to help facilitate change. Effective communications will cultivate a pervasive awareness and acceptance of the change. Effectively communicating reduces resistance and increases acceptance and support by building credibility and trust across NASA.

Change Management and Communications approaches include:

- **Aligning Leadership –** Strong and visible leadership is critical to accomplish change.
- **Engaging Stakeholders –** Stakeholders across the organization must be engaged throughout the change. Achieving stakeholder buy-in necessitates propagating awareness, understanding and commitment.
- **Developing Performance Measurement –** Provides a systematic means to understand and monitor progress towards the Change Management goals.
- **Monitoring Readiness for Change -** Gauges the organization's ability to undertake the major components of change.
- **Organizing for Change –** consists of establishing a change structure and change process.

This strategy will allow the NSSC to achieve its vision.

In order to prepare the Agency and its' employees for the introduction of the NSSC, the Implementation Team must focus on change management and communications activities.

A.6.6.1 Change Management

Aligning Leadership – Effective leadership is critical to the success of the changes envisioned by the creation of the NSSC. Leadership must be visible and exist at all level of the organization. The major imperatives for effective leadership of the change include:

- Creating, personalizing, and communicating the vision
- Aligning resources and removing barriers so the vision can be achieved
- Motivating and supporting those who make the vision a reality

The actions that need to be performed include: Identifying the leaders across all aspects of the governance model, making these leaders visible and empowered, providing forums to obtain alignment.

Engaging Stakeholders – Stakeholders are individuals or groups who can affect, or are affected by, the proposed changes under NSSC. Engaging stakeholders consists of identifying who they are, securing their support, and enlisting them to resolve conflicts by:

- Gathering information about how they (stakeholders) view the change – through surveys, focus groups, interviews etc.
- Analyzing information and developing a plan to respond to stakeholder interest, needs, concerns
- Using key stakeholders to serve as change agents to engage with other stakeholders

Developing Performance Measurement – Provides a systematic means to understand and monitor progress towards the Change Management goals and provides information that promotes the taking of actions toward the achievement of goals.

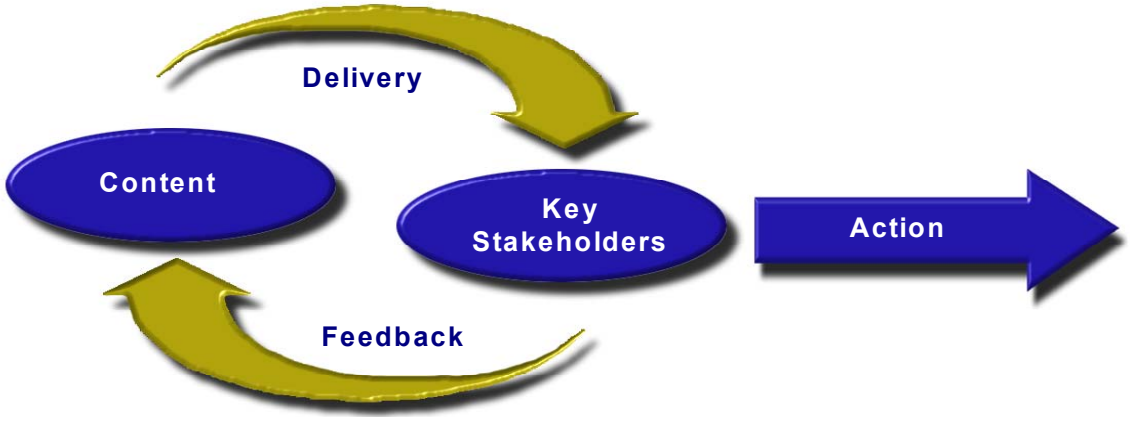
Monitoring Readiness for Change – Gauges the organization's ability to undertake the major components of change. The Change Readiness Assessment will gauge key stakeholder knowledge and attitudes, identify barriers to change (resistors) and explore opportunities for creating buy-in. Any change management and communications effort must be built upon a solid foundation of credible data and feedback – not well meaning speculation and assumptions or it will not be successful.

Organizing for Change – Consists of establishing a change structure and change process. This will involve identifying change agents within the different NASA centers who can be effective communicators - training maybe needed to assist the change agents. Creating internal change support for the NSSC program and its activities may involve confronting managers who undercut the change efforts.

A.6.6.2 Communications

An effective communications approach focuses on creating timely, relevant and consistent content, delivering context, information and rationale to key audiences, collecting feedback to measure impact and adjusting effort for maximum effectiveness.

Figure A-4: Dynamic Communications Approach



The communications process is a circular, repeating process that is not static, one time event.

Communications works within the Change Management approach:

Aligning Leadership – Communications is a method for Leaders to transmit their Vision
Engaging Stakeholders – Stakeholders will be engaged by a compelling story
Developing Performance Measurement – Communications will highlight the NSSC's successes
Monitoring Readiness for Change – understanding NASA and its resistors will allow for tailored messages to be communicated
Organizing for Change – communications provides change agents messages to overcome resistance

It is important to be honest throughout the communications process so that validity and integrity are not lost during the project. A robust Communications Plan was developed in order to ensure that the right information gets to the right people at the right time. The Communications Plan addresses the following questions:

- What is the goal of the communication?
- What message needs to be relayed?
- Who needs to receive the message? Who needs to deliver the message? What is the appropriate vehicle (e-mail, meeting, etc.)?
- When should it start (today, next year, or project phase dependent)?
- How frequently should this message/information be delivered?

Once these questions are answered, a more in-depth plan can be developed to begin strategic message dissemination.

A comprehensive list of stakeholders was identified:

- HQ Management
- Center Directors
- Functional Managers/Directors of Administration at each NASA Center
- Functional (affected) Employees
- All Employees
- Unions

- Congress
- OMB/Other external entities

While a very comprehensive list of stakeholders was identified, most change initiatives will focus on a group of key stakeholders in relation to the NSSC. Special consideration of change activities will be given to affected employees, in particular those employees with a majority of their current functions set for transfer to the NSSC.

The Stakeholders will be integral to the NSSC's success and to helping mitigation of risks and to focusing on the critical success factors. The Change Management team will be the primary interface group to the stakeholders to ensure continual feedback from requirements definition through operations and on to becoming the Center of Excellence".

There are several channels available to NASA's NSSC Project that should all be used to ensure effective communications. These include:

- Formal briefings
- Town Hall Meetings
- Informal Issues Forums
- Conferences
- Teleconferences
- Management Meetings
- Staff Meetings
- NASA websites (Internet)
- NASA Intranet
- Newsletters
- Structured memoranda
- Emails
- Broadcasts

These various channels of communication will be utilized in relation to their effectiveness with stakeholder groups. While not all channels will be used with all stakeholder groups, the team will ensure that every effort is made to communicate needed messages in a timely manner.

The timing of communications is being driven by:

- *Implementation Schedule* – as the NSSC project progresses through its phases, communicate necessary materials to inform targeted audiences of developments.
- *As issues arise* – address appropriate audience as unanticipated needs arise for immediate communications.

The key to the communications strategies will be honest and consistent messages delivered through a wide variety of mediums. This will reinforce the integrity of the project and its management, while reassuring the stakeholders and addressing their concerns.

A.6.6.3 Next Steps

- Continuously update the Communication Plan as new information becomes available
- Evaluate the effectiveness of messages that are conveyed to key stakeholders

- Beginning the baseline stakeholder analysis
- Utilize NASA's Intranet & Website for dissemination of information
- Identification of Change Agents at all NASA Centers
- Continuously plan for future Change Management activity

Change Management and the Communications Strategy for the NSSC will be very important in terms of success. Both of these issues must be dealt with in real time and next steps should constantly be assessed and reviewed in order to keep step with progress throughout the project.

A.6.6.4 Conclusions

The initial communications plan will be expanded to include a more comprehensive approach to communicating with stakeholders. The development of a concrete change management and communications plan is critical to successfully prepare the workforce for this change.

Appendix B: Project Organization/ Resource Requirements

The project organization is built around representatives from the functional areas and NASA Centers. This Implementation Team is responsible for overseeing points of interdependencies, a consistent approach to cost analysis, migration of functions, human capital solutions and defining project goals and methods. When the project progresses to the next stage (Initial Phases Consolidated at the end of 2003) the project organizations will evolve, with a focus on greater involvement from functional resources.

The NSSC initiative is expected to involve certain initial, one-time investments related to facility requirements, human capital training, recruitment, and other requirements, as well as NSSC program management and transition requirements. These investments, which are in addition to ongoing IFMP/IT investments, will be developed by March 2003, based on the anticipated NSSC scope and implementation approach.

Appendix C: Functional Team Reports- Human Resources

C.1 Functional Area Overview

The Human Resources staff at NASA serves as a business partner working with Agency management to promote and achieve NASA's critical mission goals. HR provides expert level advice on a wide array of human resources and employee development services to both managers and employees. NASA's HR community develops and administers a broad range of programs such as workforce planning and analysis, recruitment and staffing, compensation, leadership and organization development, employee development, employee benefits, family friendly services, performance management, and labor relations.

C.2 Sub Functions / Activities Recommended to be Consolidated

The HR functions under investigation fall under the following five main categories:

- Support to Personnel Programs (1-14)
- Employee Development/ Training Programs Support (15-23)
- Employee Benefits and Services (24-30)
- Human Resource Information Systems and Reports (31-38)
- Personnel Action Processing and Recordkeeping (39-40)

The NASA Shared Services Center (NSSC) HR Subteam augmented, reviewed, and revalidated the original Study Team's list of HR functions acting as potential candidates for transition to the NSSC. The original Study Team recommended 36 HR functions for transfer to the NSSC. The NSSC HR Subteam added HR functions to the Study Team's original list bringing the total functions under review to 49. Of these 49, the HR Subteam recommended 40 functional tasks for migration to the NSSC. The following is a list of the 40 functions that the HR Subteam recommended for transition to the NSSC:

Support to Personnel Programs

1. Drug testing program management
2. Responding to general employment inquiries
3. Coordination of position classification appeals
4. College Relations
5. Award Processing
6. Preparation and distribution of annual employee notices
7. Selected special HR studies of agency-wide interest
8. OSC Certification (No Fear Act Requirements)
9. Personnel Security
10. Advisory Services to HR Specialists
11. Development of HR Materials/Tools
12. Agency Honorary Awards
13. Support for HR Automated Systems
14. SES Case Documentation

Employee Development/ Training Programs Support

15. Registration/reimbursement for off-site training activities
16. Data entry of training data
17. Administration and oversight of training data systems and requirements

18. Transactional data gathering and reporting
19. Processing of on-site training nominations & related follow on activities
20. Development and procurement of training services
21. Administration and oversight of on-line Agency training
22. Selected special Training studies of agency-wide interest
23. Production of informational materials

Employee Benefits and Services

24. Benefits processing
25. PCS/ Relocation
26. Financial Disclosure administrative processing
27. Processing of outside employment
28. Some aspects of in-processing
29. Administration of Leave Donor Program and Advanced Sick Leave Request
30. Organization of Health Fairs

Human Resource Information Systems and Reports

31. Preparation of Management reports
32. HR data/information management
33. HR Information System
34. Web-site development
35. User support/expertise for Center HR data users
36. EEO Information
37. FEORP Annual Reporting
38. Agency Database Oversight

Personnel Action Processing and Recordkeeping

39. Maintenance of Official Employee/Performance records
40. Personnel Action Processing

C.3 HR Functional Characteristics Matrix

The following table depicts Human Resources functional tasks categorized by services to be consolidated, tasks requiring more study and services that will remain at the Centers.

Business Area	Services to be Consolidated	More Study Needed	Services Remaining at Centers
Human Resources *49 Activities Reviewed*	■ Personnel Program Support ■ Employee Development and Training Support ■ Employee Benefits and Services ■ HR Information Systems and Report ■ Personnel Action Processing & Recordkeeping *(27% of HR FTEs)*	■ Management Education Center at WFF	■ Human Capital Planning ■ Organizational Effectiveness ■ Employee Advocacy ■ Management Advisory Services ■ Policy/Program Development

C.4 FY02 FTE and Funding Baseline

The HR Subteam used templates to gather Civil Service FTEs, Contractor WYEs, and salary data for each of the HR functional tasks on a Center-by-Center basis. The HR Subteam estimated how many Civil Service and Contractors currently perform the functional tasks that were recommended for transition to the NSSC. During fiscal year 2002, there were an estimated 79 Civil Service and 76 Contractors performing those functional tasks recommended to migrate. The Civil Service (CS) to Contractor mix is approximately 51% to 49%.

The HR Subteam gathered FY02 Baseline data for the entire HR function across NASA. In fiscal year 2002, there were approximately 390 Civil Service and 179 Contractors for a total of 569 FTEs. Comparing the 155 FTEs recommended to transition to the NSSC to the total overall HR FTEs, approximately 27% of the HR FTE will transition to the NSSC, while the remaining 73% will be retained by the NASA Centers to support the strategic human capital activities.

C.5 NSSC vision-end state

The HR Subteam estimated the number of FTE, both CS and Contractor, that would be needed at the NSSC to perform the functional tasks that were identified to transition to the NSSC. This estimate was derived based on the assumptions that there would be savings from consolidating work currently performed at 10 different locations and the implementation of appropriate automated systems. The subteam estimated that 21 Civil Servants and approximately 94 Contractors would perform the HR functional tasks, giving a total FTE of approximately 115 versus the current total of 155 total FTEs. The Civil Service to Contractor mix in the NSSC will be approximately 18% to 82%. Overall, the HR community will experience approximately a 26% reduction in total Civil Service and Contractor FTEs in those functional tasks earmarked for transition to the NSSC. The following table displays the changing of the workforce composition from current state to the NSSC vision:

Table C-1: HR FTE Analysis

Changes in NSSC FTE/WYE (Current--> NSSC Vision End-State)	
Current Total FTE	79.0
NSSC Vision End-state FTE	21.0
Percent *Increase* in FTE	-73.4%
Current Total WYE	76.0
NSSC Vision End-state WYE	94.0
Percent *Increase* in WYE	NA
Current Total FTE & WYE	155.0
NSSC Vision End-state FTE & WYE	115.0
Percent *Increase* in Total FTE & WYE	-25.8%

C.6 Estimated FTE and Cost Savings (Current Level vs. NSSC vision)

The total current aggregate salaries allocated to both Civil Service and Contractors is approximately $12.7M. In the NSSC initial state, those costs are estimated to be $9.8M. The cost savings from current state to NSSC initial state is approximately $2.9M, giving the NSSC an approximate 23% reduction in costs.

C.7 Interdependencies and Qualifiers required for implementation

Certain issues must be addressed to ensure successful transition of the Human Resources activities to the NSSC. The Core HR module of the IFMP must be implemented. An automated system that meets all HR requirements must be in place prior to the migration of many of the HR functional tasks. It is critical that the appropriate systems and tools be in place to ensure that the HR activities identified to move can be administered in a consolidated environment.

The IFMP schedule for the HR module has slipped and the implementation date is now under review. An opportunity for a more timely consolidation may exist through the Agency implementation of e-Payroll. In this effort, a consolidated service provider offers payroll, time and attendance and some HR transactional processing services. The Agency e-Payroll study team has defined the options available and recommended utilization of the Department of Interior, National Business Center's Federal Personnel and Payroll System (FPPS). FPPS offers automated SF-52/50 transaction processing with the capability to have managers and supervisors initiate actions through automated workflow. Assuming management adopts the recommendation, the Agency will implement by September 2004. The utilization of this capability by the NSSC, prior to IFMP Integrated Human Capital Management System (ICHMS) implementation, will be considered as the e-Payroll initiative matures.

Also the work processes must be standardized and a detailed workflow analysis on each of the functional tasks must be performed prior to the migration of the HR functional tasks. As noted in the functional phasing section from above, all subteams will utilize the SIPOC diagrams to document their workflow and processes.

C.8 Conclusions

The Human Resources Subteam identified 40 functional tasks from the five main functional categories as prime candidates to migrate to the NSSC. These 40 candidate functions identified for migration employ approximately 27% of the total baseline figure for the HR function across the Agency. Initial analysis indicates that the NSSC will reduce aggregate HR salaries and associated costs from $12.7M to $9.8M, a cost savings of approximately $2.9M (23%).

Appendix D: Functional Team Reports – Procurement

D.1 Functional Area Overview

NASA presently performs its strategic function of acquiring Agency goods and services through the efforts of approximately 800 civil servants and 100 contractor employees working in Procurement Offices at each of the nine NASA Centers. The NASA Assistant Administrator for Procurement and staff provide overall procurement direction for the Agency. Each Procurement Office provides expert advice and guidance to programs, projects and the institution on a full range of procurement issues from strategy development and requirements definition though the solicitation, evaluation and award process, continuing through successful management and administration of contracts. Advice provided by center procurement offices is integral to establishing effective business management strategies at each center. Center procurement offices implement public policy through compliance with a variety of public laws and federal regulations. Finally, the offices of procurement are stewards of the public trust and work diligently to obtain the best value for the taxpayers' dollar.

D.2 Sub Functions / Activities Recommended to be Consolidated

The Procurement functions under investigation fall under the following four main categories:

- Transactional Services
- NSSC Major Contracting Operations
- Workforce Development & Management Operations
- Procurement Electronic Business Systems

The initial Study Team recommended 32 procurement functions for transfer to the NSSC. The Procurement Subteam reviewed, augmented, and revalidated the initial Study Team's list of procurement functions as potential candidates for transition to the NSSC. The Procurement Subteam reviewed more than 100 activities. Of which, 43 were identified as appropriate for transfer to the NSSC. These 43 activities were further reviewed for skill mix and organizational requirements, which resulted in their being grouped into 21 functions. The grouping was conducted to combine similar functions, thereby reducing the reporting of multiple, fractional FTE's. The following is a list 21 functional groupings including all 43 activities that the Procurement Subteam recommended for transition to the NSSC:

Transactional Activities

Group 1

1. Grant Awards
2. Cooperative Agreement Awards (with Universities, excludes institutes)
3. Grant Administration
4. Cooperative Agreements (administration) (with universities, excludes institutes)
5. Unsolicited Proposals Processing

Group 2

6. Award SBIR's and STTR's
7. SBIR's and STTR's administration
8. Procurement Management of SBIR and STTR Program

Group 3

9. Management of Contract Closeout

10. Contact for ULO reporting

Group 4

11. Support to NASA (HQ) Broad Agency Announcements, includes SRBA activities

NSSC Major Contracting Operations

Group 5

12. Assessment and Coordination of CCI Opportunities
13. Management of Consolidated Contracting Initiative

Group 6

14. Management of Existing CCI Contracts
15. Award of new CCI contracts of a business nature

Group 7

16. Award and Management of Centralized Agency Contracts (total project mgmt)

Workforce Development and Management Operations

Group 8

17. Coordinate and Manage Agency standard 1102 training program
18. NASA Procurement Intern Program
19. Coordinate Agency-wide procurement specialized mini-training sessions

Group 9

20. Management of Agency Bankcard program

Group 10

21. Management of Self-assessment Program

Group 11

22. Coordinate performance of Contractor Purchasing System Reviews

Group 12

23. Development of COTR Refresher training

Group 13

24. Train new Bankcard holders & approving officials
25. Perform Bank Card audits

Procurement Electronics Tools & Systems

Group 14

26. Develop electronic tools for procurement workforce
27. NAIS Team Activities except executive leadership
28. Coordinate/support Center desktop computer procurement applications (NAIS)
29. Develop and manage Procurement forms
30. Develop and maintain Procurement Checklist tools

Group15

31. Manage and maintain Past Performance database
32. Maintain/Operate Master Buy Plan software
33. Maintain system for accumulating procurement data/metrics
34. Maintain Acquisition Forecast software
35. Maintain Agency/Center Procurement Office Webpage (excludes content mgmt).

Group 16

36. Establish future procurement system requirements
37. IFMP procurement module coordination
38. Electronic commerce coordination and planning

Group 17

39. Expanded IFM Help desk and call center

Group18

40. 40. Center system maintenance support of AMS

Group 19

41. Systems support of SRBA

Group 20

42. Electronic distribution and handling of center annual customer surveys

Group 21

43. Maintain and publish NASA procurement regulations

D.3 Procurement Functional Characteristics Matrix

The following table depicts Procurement functional tasks categorized by services to be consolidated, tasks requiring more study and services that will remain at the Centers.

Business Area	Services to be Consolidated	More Study Needed	Services Remaining at Centers
Procurement *109 Activities Reviewed*	■ Transactional Services (Grants, Cooperative Agreements & SBIR/ STTR Processing) ■ NSSC Major Contracting Operations ■ Workforce Development and Management Operations ■Procurement Electronic Business Systems *(15% of Procurement FTEs)*	■ Subcategories of Simplified Acquisition Procurements	■ Policy and strategic support ■ Center-Specific Mission Procurements

D.4 FY02 FTE and Funding Baseline

The Procurement Subteam gathered FTE and salary data for each Procurement functional task on a Center-by-Center basis. The Procurement Subteam estimated how many Civil Service and Contractors currently perform the functional tasks that are recommended for transition to the NSSC. During fiscal year 2002, there were an estimated 100 Civil Service and 44 Contractors performing those functional tasks recommended to migrate to the NSSC. The Civil Service to Contractor mix is approximately 69% to 31%.

The Procurement Subteam gathered FY02 Baseline data for the entire Procurement function across NASA. In fiscal year 2002, there were approximately 846 Civil Service and 96 Contractors giving a total of 942 FTEs. Comparing the 144 FTEs recommended to transition to the NSSC to the total overall Procurement FTEs, approximately 15% of the Procurement FTE will transition to the NSSC, while the remaining 85% will be retained by the NASA Centers.

D.5 NSSC vision-end state

The Procurement Subteam estimated the number of FTE, both CS and Contractor, that would be needed at the NSSC to perform the functional tasks that transitioned. The Subteam estimated that 40 Civil Service and 91 Contractors would perform the Procurement functional tasks, giving a total of 131 FTEs. The Civil Service to Contractor mix in the NSSC is approximately 31% to 69%. The following table displays the changing of the workforce composition from current state to the NSSC vision.

Table D-1: Procurement FTE Analysis

Changes in NSSC FTE/WYE (Current--> NSSC Vision End-State)	
Current Total FTE	100.0
NSSC Vision End-state FTE	40.0
Percent *Reduction* in FTE	60.0%
Current Total WYE	44.0
NSSC Vision End-state WYE	91.0
Percent *Increase* in WYE	106.8%
Current Total FTE & WYE	144.0
NSSC Vision End-state FTE & WYE	131.0
Percent *Reduction* in Total FTE & WYE	9.0%

D.6 Estimated FTE and Cost Savings (Current Level vs. NSSC vision)

Total current salaries allocated to both Civil Service and Contractors is approximately $12.6M. In the NSSC initial state, those costs are estimated at $11.4M. The cost savings from current state to NSSC initial state is approximately $1.3M, giving the NSSC a 10% reduction in costs.

D.7 Interdependencies and Qualifiers required for implementation

There are several qualifiers and interdependencies for successful transition of Procurement functions to the NSSC. Successful implementation of IFM Core finance is the foundation for completion of all transactional activities, with contractor access to the IFM system required. Further, in addition to IFM, it is recognized that additional IT support must be provided by the Information Technology subfunction. Standardized work processes and a detailed workflow analysis for each of the functional tasks must be performed prior to the migration to the NSSC. Other prerequisites for success include electronic end-to-end grants processing and SBIR/ STTR process re-engineering. Finally, standardized Agency forms application software must be identified for successful the implementation of Procurement's standardized forms initiative.

D.8 Conclusions

The Procurement Subteam identified 43 activities grouped into 21 functions from the four main functional categories as prime candidates for transition to the NSSC. These 21 candidate functions identified for transition employ approximately 16% of the total baseline figure for the Procurement function across the Agency. Initial cost analysis indicates that the NSSC will reduce aggregate salaries and associated costs for the Procurement function from approximately $12.6M to $11.4M, resulting in a cost savings of approximately $1.3M (10%).

Appendix E: Functional Team Reports- Financial Management

E.1 Functional Area Overview

The financial management function is composed of a variety of key services that may be categorized under the following headings: accounting, paying, analysis, and reporting. Activities under the accounting group include general administration and policy, reimbursable accounting, cost accounting, labor distribution, accounts receivable, general ledger and fund control activities. The payment category houses functions such as payroll, travel reimbursements, and accounts payable to vendors. Finally, the reporting area includes financial reporting by Contractors along with a variety of periodic Agency financial reporting.

E.2 Sub Functions / Activities Recommended to be Consolidated

The financial management Subteam reviewed functional activities or tasks found within the financial management function. The following is a list of financial management activities that the Subteam recommends for transition to the NSSC:

1. Accounts Payable
   a. Vendors
   b. Payroll
   c. Travel
2. Certifying Officer function
3. Accounts Receivables, Collection Agent
4. Reimbursables
   a. Collections
   b. Closeouts
5. Payroll
6. Time and Attendance
7. Labor Distribution
8. Financial Reporting Services
   a. Treasury SF-224
   b. NF 1018
   c. General Ledger
9. Quality Control
   a. Internal reviews for NSSC/Finance
10. PCS/International Travel Vouchers
11. Domestic Travel Vouchers
12. Center Customer Services
13. Customer Services (located at NSSC/Finance)

E.3 Financial Management Characteristics Matrix

The following table depicts Financial Management functional tasks categorized by services to be consolidated, tasks requiring more study and services that will remain at the Centers.

Business Area	Services to be Consolidated	More Study Needed	Services Remaining at Centers
Financial Management *29 Activities Reviewed*	■ Accounts Payable (Payroll, Travel, Vendors) ■ Payment Certification ■ Accounts Receivable (Billing, Collection) ■ Payroll, Time & Attendance ■ Labor Distribution ■ Financial Reporting (General Ledger, Treasury 224, NF-1018's) ■ Reimbursable Accounting (Collections, Closeouts) ■ Internal Reviews for NSSC/F office *(44% of FM FTEs)*	■ Property Accounting (Real & Personal) ■ Posting of Contractor 533 Cost Input ■ Travel Ticketing and Reservations function	■ Fund Control ■ Reconciliations to GL and Subsidiary Accounts ■ Rate Development ■ Business Process Leads ■ SAP Super-users Core Finance ■ Budget Execution activities ■ Labor System Accounting and Control ■ Service Pool Accounting and Operations ■ Validation of Receipts ■ Personal and Real Property ■ Cost Estimation (reimbursable, service pool, contracts) ■ Facilities, Pricing Analysis ■ Center Internal Reviews ■ Asset Validation & Evaluation ■ Center Financial Statements ■ 533 Cost Analysis ■ Systems Accounting ■ General Administration and Policy & Training

E.4 FY02 FTE and Funding Baseline

The NSSC Financial Management (FM) Subteam gathered FTE and salary data for each FM functional task on a Center-by-Center basis. The FM Subteam estimated how many Civil Service and Contractors currently perform the tasks that are recommended for transition. During fiscal year 2002, there were an estimated 142 Civil Service and 98 Contractors performing those functional tasks recommended to migrate to the NSSC giving a total of 240 FTEs. The current Civil Service to Contractor mix is approximately 59% to 41%.

The FM Subteam gathered FY02 Baseline data for the entire FM function across NASA. In fiscal year 2002, there were approximately 384 Civil Service and 163 Contractors giving a total of 547 FTEs. Comparing the 240 FTEs recommended for transition to the NSSC to the total overall FM FTEs, approximately 44% of the FM FTE will transition to the NSSC, while the remaining 56% will be retained by the NASA Centers.

E.5 NSSC vision-end state

The FM Subteam estimated the number of FTEs, both Civil Service and Contractors, that would be needed at the NSSC to perform the functional tasks planned for migration. The subteam estimated that the NSSC would decrease the current CS from 142 to approximately 58 CS, while increasing the number of needed Contractors from 98 to 106, to perform the NSSC FM functional tasks. Overall, the total FTEs decreases from 240 to 164, or a total percentage decrease of 32%. The Civil Service to Contractor mix in the NSSC is approximately 35% to

65%. The following table displays the forecasted altering of the workforce composition from current state to the NSSC vision:

Table E-1: Financial Management FTE Analysis

Changes in NSSC FTE/WYE (Current--> NSSC Vision End-State)	
Current Total FTE	142.0
NSSC Vision End-state FTE	58.0
Percent *Reduction* in FTE	59.2%
Current Total WYE	98.0
NSSC Vision End-state WYE	106.0
Percent *Increase* in WYE	8.2%
Current Total FTE & WYE	240.0
NSSC Vision End-state FTE & WYE	164.0
Percent *Reduction* in Total FTE & WYE	31.7%

E.6 Estimated FTE and Cost Savings (Current Level vs. NSSC vision)

In the current state, the FM functional activities targeted for migration to the NSSC costs approximately $18M a year. The funds needed to support the FM activities at the envisioned NSSC come to a total of approximately $13.4M. Migrating the identified candidate FM functions to the NSSC, NASA will save approximately $4.6M or about 25% in total annual savings within the FM community.

E.7 Interdependencies and Qualifier required for implementation

FM has a number of interdependencies and qualifiers that are required prior to the implementation of the NSSC. The IFM systems (Core Financial, Travel Manager, and Time and Attendance) must be operational and user friendly. The entire agency should utilize one Agency Location Code (ALC), travelers will be responsible for retaining their own receipts, the Travel Manager interface to SAP must be real-time, and there should be a standard agency work breakdown structure. All grant activity must interface with the Department of Health and Human Services (HHS). There is a need for the mandatory utilization of the web-based NF-1018 system. All centers should use the same Time and Attendance System. Also standard forms must be consistent with the "One NASA" concept. In order for the FM function to successfully transition, IT support must be provided by the Information Technology subfunction. Procedures that are consolidated under the NSSC/Finance should be standard across the agency. Approximately 14,000 square feet for office space will be required along with 179 workstations. Note that this space excludes storage area, conference rooms, common areas and break rooms. Document scanning capabilities are also needed.

E.8 Conclusions

Overall the Financial Management community identified a large amount of work currently performed at the individual Center level to be transitioned to the NSSC, approximately 44% of their total FTEs. This due to many of the functions performed being transactional in nature. FM will experience some cost savings in the transition of the identified functions from the current state to the NSSC. Overall FM will experience approximately $4.6M or 25% in cost savings. Additional benefits will be gained through consolidation of currently fragmented processes. Over time, due to locating the aforementioned finance functions in a single community, expertise will

continue to increase creating further efficiencies. It should be noted that the full functionality of the Core Financial application and the recommended processes and policy changes must be achieved in order to ensure the strong likelihood of realizing the projected reductions and savings.

Appendix F: Functional Team Reports- Resources Management

F.1 Functional Area Overview

The resources management (RM) community at NASA performs a range of critical functions in support of NASA projects, programs, and the institution. These functions can be defined and grouped into the following functional areas:

- Budget Formulation
  - Quantify technical requirements
  - Evaluate alternatives and iteration of solutions
  - Establish baselines
  - Define performance objectives
- Budget Justification
  - Develop program/project rationale
  - Prepare supporting documentation
  - Advocate the program/project
- Budget Execution
  - Administer resources
  - Review program/project performance
- Program/Project Analysis
  - Cost estimating and evaluation
  - Schedule analysis
  - Evaluate impacts of program/project changes
  - Forecast future costs/requirements
  - Assess overall program performance
  - Identify issues/anomalies
  - Provide alternative solutions to management
- Independent Cost Estimating

Each function can be broken into discrete activities or subfunctions that are currently performed by approximately 1000 civil service FTEs and 121 contractor FTEs. These services are performed in a highly interactive manner, requiring regular contact with program/project management, system and subsystem leads, and science and technical experts. Delivery of effective resources management services requires personnel to draw on experience, apply judgment, and create analytical solutions.

F.2 Sub Functions / Activities Recommended to be Consolidated

The RM Subteam augmented, reviewed, and revalidated the original Study Team's list of resource management functions. After careful review and scrutiny of the RM functional tasks performed at the Centers across the Agency, the RM Subteam identified that no tasks should be transitioned to the NSSC initially. The RM function is inherently analytical in nature requiring in-depth program/project knowledge and is an integral part of the decision-making process. However, there are several areas that should be re-evaluated after the successful implementation of the IFM Core Financial and Budget Formulation Modules, including:

- Initialization of cost accruals

- Centralized agency budget database entry and edit
- Transactional aspects of Reimbursable Agreements
- Funds distribution
- Funding of Purchase Requests (particularly incremental funding)

In addition, the Agency-level independent cost estimating/assessment organization should be further studied as a candidate for the NSSC. It is a specialized service that has already been consolidated, however, it is currently being revitalized and strengthened. Discussions with current management indicated it would be disruptive and unproductive to include this organization as a part of the NSSC at the outset.

F.3 Resources Management Characteristics Matrix

The following table depicts Resources Management functional tasks categorized by services to be consolidated, tasks requiring more study and services that will remain at the Centers.

Business Area	Services to be Consolidated	More Study Needed	Services Remaining at Centers
Resources Management *28 Activities Reviewed*		■ Independent Agency-Level Cost Estimating and Independent Review Capability ■ Initialization of Cost Accruals ■ Centralized Agency Budget Database Entry and Edit ■ Transactional Aspects of Reimbursable Agreements ■ Funds Distribution ■ Funding of Purchase Requests	■ Budget Formulation ■ Budget Justification ■ Budget Execution (most transactional activities already implemented in IFMP) ■ Program Analysis ■ Cost Estimating

F.4 Conclusions

Due to the nature of functional tasks within the Resources Management function at NASA, no functional tasks were identified as candidates for initial transition to the NSSC. The RM function is inherently analytical in nature requiring in-depth program/project knowledge and is an integral part of the decision-making process. Overall the "hands-on" nature of the RM function makes it difficult to identify activities that would benefit NASA as a whole through a transition to a shared services environment. This conclusion was supported by the site visits to other organizations that have already implemented shared services; none of those organizations had consolidated resources management into their shared services centers. However, looking forward, with increased technological advances, as agency reporting requirements change, and as IFMP is implemented, additional functional candidates for consolidation could emerge.

Appendix G: Functional Team Reports- Information Technology

G.1 Functional Area Overview

NASA began Information Technology (IT) consolidations in the mid 1980's to achieve budget reductions and live within declining staff levels. IT consolidations and outsourcing continued in the 1990's to accommodate increasing customer demands while targeted budgets and lower staff levels became a reality. An increased demand for inherently governmental IT security and customers demand for anytime, anywhere access to IT services continues to drive IT providers to consolidate services in order to meet these demands.

Consolidations continue today as part of the Information Systems Services Program. The Information Systems Services Program is a large, complex initiative that will change the manner in which IT services are provided throughout the Agency.

G.2 Sub Functions / Activities Recommended to be Consolidated

The approach to thinking about IT infrastructure will fundamentally change and many Center or lower level systems will be replaced with standard integrated Agency systems. The overarching goal of the Information Systems Services Program is to help achieve NASA's vision by providing the information systems and technologies that enable anywhere, anytime access to information and people.

The NSSC IT Subteam augmented, reviewed, and revalidated the original Study Team's list of IT functions acting as potential candidates for transition to the NSSC. The original Study Team recommended 2 major IT functions for transfer to the NSSC, and suggested more study was needed for 5 other functions. The NSSC IT Subteam added the major functions of ODIN follow-on and NASA's Computing and Communications Services (NCCS) to the original list. The following is a list of the functions that the IT Subteam recommended for transition to the NSSC:

IFM Competency Center Services

1. Program Wide Support
2. Applications Function Support
3. Follow on Projects
4. Application Development Support
5. Application Operations Support

ODIN Follow-on Services

1. Desktop seats
2. LAN seats
3. Phone seats
4. Catalog Items
5. Upgrades

NASA's Computing and Communications Services (NCCS)

1. Utility Services
2. Data Center (NACC)
3. WAN (NISN)
4. Agency-wide Applications
5. Special Projects

G.3 IT Functional Characteristics Matrix

The following table depicts Informational Technology functional tasks categorized by services to be consolidated, tasks requiring more study and services that will remain at the Centers.

Business Area	Services to be Consolidated	More Study Needed	Services Remaining at Centers
Information Technology *37 Activities Reviewed (plus sub-functions)*	■ IFM Competency Center Services ■ NASA'S Computing and Communications Services (NCCS) ■ ODIN Follow-on Services	■ Calendaring ■ Pagers ■ Cell Phones ■ Print/Fax/Copier Services ■ Public Web Hosting ■ Web Shop ■ Document Management ■ Non NISN ISP ■ Competency Management Systems ■ Asset Management Systems	■ Program-/Mission-Unique IT Operations

G.4 FY02 FTE and Funding Baseline

The IT Subteam gathered FY02 Baseline data for the entire IT function across NASA. In fiscal year 2002, there were approximately 1,631 Civil Service and 7,788 Contractors giving a total of 9,419 FTEs[1] .

Because the IT community is in the middle of transitioning to a shared service model, existing FTE performing the functions recommended for transition could not be determined. Furthermore, the IT functions continue to rapidly change across the Agency making it difficult to establish a comparison to pre-consolidation FTEs.

G.5 NSSC vision-end state

The IT Subteam estimated the number of FTE, both CS and Contractor, that would be needed at the NSSC to perform the functional tasks that were identified to transition over to the NSSC. The subteam estimated that 74 Civil Service and approximately 429 Contractors would perform the IT functional tasks, giving a total FTE of approximately 503. The Civil Service to Contractor mix in the NSSC is approximately 15% to 85%.

Overall, the IT community will not experience a reduction in total Civil Service and Contractor FTEs in those functional tasks earmarked for transition to the NSSC. The goal is to transform the Agency's ten information architectures into a single Agency architecture. Given the magnitude of this effort, no single Center has sufficient leverage to bring about such large-scale changes and improvements. As a result, the NSSC IT Services will be provided via a virtual organization with matrixed support at many of the Centers.

[1] This data was collected November 2002 by Code AO (CIO) and Code B (CFO). These numbers represent a 39% increase from FAIR Act data because it includes FTEs supporting IT functions as part of mission support in non-IT providing organizations.

G.6 Estimated FTE and Cost Savings (Current Level vs. NSSC vision)

Due to the dynamic nature of the IT function, it was not possible to estimate a pre-NSSC FTE figure for those functions transferring to the NSSC. Therefore, at this point, an estimated FTE and cost savings analysis is not possible.

G.7 Interdependencies and Qualifiers required for implementation

The Information Technology has interdependencies and qualifiers that are required for implementation. In addition to the identification of dedicated NSSC functional areas' IT requirements, NASA must make decisions regarding the future of several existing consolidation activities. For instance, the follow-on contract for the Consolidate Space Operations Contract (CSOC) must determine whether or not to continue providing communications services via an Aerospace contract, which would affect competitive pricing. Also, decisions must be made relative to keeping the current Outsourcing Desktop Initiative for NASA (ODIN) contract or modifying the scope of the contract and determining the most effective vehicle to provide like services. There are several new consolidated IT activities under NASA's Computing and Communications Services (NCCS) that need further staffing clarification to determine the impact to NSSC. And lastly, there is great dependency on IFM and NCCS development that will provide the infrastructure service for the NSSC, therefore any schedule changes will directly affect the IT functions implementation.

G.8 Conclusions

The IT Subteam identified 3 major functional tasks to migrate to the NSSC. These candidate functions identified for migration employ approximately 5% of the total baseline for the IT function (including mission IT) across the Agency. The NSSC will be heavily involved with the Agency's Enterprise architecture, run by the Chief Information Officer. This Enterprise Architecture will enable integrated systems, services and tools across the Agency. These tools enable other functional areas to achieve reductions and streamline processes. The IT community has much to offer the NSSC in terms of transfer of functional activities to the new shared services environment. The IT community also has much to gain through the transition to the NSSC in terms of improving IT services provided to NASA as a whole.

Appendix H: Functional Team Reports- Facilities

H.1 Functional Area Overview

The Facilities functional area includes Construction of Facilities (construction/renovation and repair), Locally approved construction modification, Facility Planning and Design (FP&D), Maintenance, Real Property management, and Master Planning. These functions can be further sub-divided, and each of the following functional divisions can be broken into discrete sub-functions and activities..

- Construction of Facilities
  - CoF Programming & Approval
  - Project Planning/Development
  - Locally approved construction modification
  - Facility planning and design (FP&D)
  - Construction
  - Activation

- Facilities Maintenance
  - Annual Work Plan
  - Maintenance Execution
  - Reliability Centered Maintenance
  - Maintenance Reporting
  - Backlog of Maintenance & Repair
  - Facility Condition Assessment

- Real Property Management
  - Stewardship
  - Records
  - Acquisition
  - Facility Utilization
  - Reporting
  - Disposal

- Master Planning
  - Center Vision
  - Data Collection & Analysis
  - Forecasts & Demands
  - Market Requirements
  - Preferred Concept

The Facilities function at NASA serves as consultant to and provides operational support for the Centers and NASA programs. Managers and personnel in the Facilities function ensure that the facilities and infrastructure of the Centers is designed, built, managed and maintained in a condition that can fully support NASA's challenging and unique programs and missions. Fully functional, world-class facilities are necessary to enable NASA to achieve its critical mission

objectives. Facilities personnel provide professional, consultative and analytical recommendations to the Centers and program managers.

It should be noted that the Implementation Team did not review other functional areas of asset management. The Implementation Team decided to focus on the Facilities function since this area of asset management contains the greatest portion of the asset value and annual program funding.

H.2 Sub Functions / Activities Recommended to be Consolidated

The Facilities Subteam reviewed subfunctions in (1) Construction of Facilities (including locally approved construction modification and facility planning and design (FP&D)), (2) Maintenance, (3) Real Property management, and (4) Master Planning. Within these four functional areas the subteam reviewed approximately 180 subfunctions. No functions or subfunctions were determined to be candidates for consolidation. The conclusion of the subteam was that the tasks and activities involved in the subfunctions are Center focused and require Center-based knowledge, analysis, and decisions that are directly tied to an understanding of the Center's specific mission and goals, and therefore are not candidates for consolidation. This determination is based on the Subteam's collective expert opinion that the functions reviewed are not severable from Center operations. By their very nature the functions are consultative and advisory to the Center Director and other senior managers in the support of the Center missions and in support of the NASA programs. Further, the analytical nature of the facilities functions requires an in-depth knowledge of the Center's operations and an understanding of the interrelations of different projects with ongoing Center operations for the most cost effective delivery of facilities management. The effect of moving functions to a NSSC would not result in improved performance, or cost savings.

Following this determination, the Implementation Team requested that the Facilities Subteam conduct further review of the feasibility of consolidating certain professional services. The subteam reviewed four subfunctions to determine if consolidation into a professional services organization would have the potential to enhance support of the programs at the Centers. The four subfunctions scrutinized by the second review were; (1) Master Planning, (2) A&E Services, (3) Facility Condition Assessments, and (4) Economic Analysis of projects including Life Cycle Cost Analysis. The results of this feasibility study are summarized below.

Master Planning: The two aspects of master planning that the subteam reviewed were: master planning at the Center level and consolidation (roll-up) of the master plans across the Agency.

In the subteam's discussion on the first aspect (Center Master Plans) it considered the possibility of developing an omnibus contract in which all the Centers could place task orders for the development of a Center Master Plan. These services would include the studies and analysis necessary for master plan development. This includes the steps for "visioning" the Centers future, development of information/data on existing conditions, concept development, and proposals for development.

In this scenario, a Center would still need to have a master planning staff to provide the overall guidance and direction to Center management and to the contractor. Additionally, based on recent bottoms-up development of master plans at GSFC and KSC, master plan development

needs a contractor who is familiar with the regional regulations and requirements, as well as the existing local/state governmental infrastructure for developing stakeholder involvement. If this capability were gained by use of sub-contractors from the omnibus contractor, any savings developed in the omnibus contract would likely be lost in the cost of the subcontract.

Expertise in the elements of master planning is not the only criterion for a master-planning contractor. The Centers have unique requirements that necessitate expertise in various local initiatives, such as spaceport business forecasting (KSC), in the regional development of educational and research facilities (GSFC), in regional planning for high-tech partnerships in IT and computer applications (ARC), or expertise in national requirements for aerospace test facilities (LaRC). Of the four facilities functional areas reviewed master planning has the greatest inherent need for and understanding of the Centers' missions, its ongoing operations, the projected projects, the Centers vision and its relationship to NASA's vision, and the analysis and decisions that must be made by Center management in the development of a Center Master Plan

The second aspect of master planning reviewed by the subteam was the consolidation of the Center Master Plans into a rollup across the agency. By way of description, this should not be considered a NASA Master Plan; rather it would be a consolidation of the Centers' Master Plans that would allow a quick overview of the Centers' concepts and proposals. Due to its nature it was agreed that the development of the rollup would likely fill a headquarters need for such information, but it would not be in direct support of any Center level requirement. As such, the subteam felt that this would remain a Headquarters function and not an activity that the NSSC should be involved in.

Architectural and Engineering (A&E) Services: Review of the sub-function of acquiring professional A&E services for "design for facilities construction and renovation" focused on the potential for an omnibus contract against which all Centers could write task orders for development of designs. Currently the majority of this work is contracted out by the Centers. The discussion focused on the high dollar value projects since lower dollar value projects would best remain at the Center level. This is due to the short time frame of the lower dollar projects and the presumed loss of cost and time efficiencies to manage these local projects from a corporate level. It was understood that the omnibus contract could either be with a single prime contractor that would conduct work through regional sub-contractors or it could be a contract with a pre-approved list of regional sub-contractors with which the Centers could write project-specific contracts.

Currently, and almost universally applied across all the Centers the project manager for a specific Center project interfaces with the customer/client who requires the facility or project, and develops the parameters of the task as well as the overall and specific requirements necessary in the design. The facility project manager coordinates the job from beginning to end.

The facility project manager, working with the project team, develops the scope of the project. Based on the project's requirements an A&E is selected by the Center based on matching qualifications that fit the job requirements. A general A&E firm may well be able to support the design of an office building or a mechanical space, but would likely not have the expertise to develop the design of a specialized research or test facility. Likewise a contractor with specialized expertise would cost too much and find its expertise wasted on designs of a standard nature. Since the contractors that develop the designs for the projects are often utilized

throughout the project to conduct site inspection for quality control and analysis, there is a need for the contractor to be able to support operations on a local level.

Facilities operations at NASA Centers have changed over the last decade. Reductions in personnel have moved the facilities function out of a "shop" simply supplying what the customer asked for (What the customer "wants") and has evolved into a support group led by the facility project manager that which works in close partnership with the client to provide what the client "needs." This closer relationship has meant a stronger creative community providing better services and products at a reduced cost to the client. Also, anecdotally, the experience of the Facilities Subteam is that quality of A&E services is tied directly to the proximity of the A&E firm to the client's site.

Facility Condition Assessment: Facility Condition Assessments are a connecting node between Real Property/Space Utilization and Maintenance. The development of reliable and consistent methods for condition assessments can assist Centers with their planning for repair and maintenance of facilities and component systems, and for modernization and programming for facility construction and renovation. The facility condition assessment information is used in the prioritization of tasks.

NASA Center and Headquarters are addressing the need for facility condition assessments, due to a current maintenance handbook (NPG 8831) requirement. Some Centers have specific contract requirements in their maintenance contracts for dedicated personnel or a separate sub-contractor to perform the facility assessments on a continual basis, covering all facilities at the Center in 3 to 5 years. This requirement is written into the scope of their maintenance contract. Other Centers require the assessment as part of the maintenance contract but not by dedicated personnel. Again the assessments for all facilities are completed in 3 to 5 years. Some Centers use general knowledge in place of a formalized assessment program, or they may use "maintenance calls" as a guide to facility condition.

Within the deferred maintenance (DM) review conducted by headquarters, a facility condition index (FCI) was developed for 7 specific systems of all NASA facilities. The DM review of all the Centers was carried out under a headquarters contract. The DM review generated a parametric estimate of the value of deferred maintenance for the Center as well as the FCI mentioned above. The DM method and the FCI appear to achieve the same result as a NSSC effort. The development of this tool and any recurrent agency-wide review is a headquarters function that is carried out by a specialized contractor. The subteam determined this was not a candidate for consolidation; rather it is a headquarters function.

Economic Analysis and Life Cycle Cost Analysis: An economic analysis (EA) is conducted on all major facilities projects and a life cycle cost analysis (LCCA) is required by OMB for all of NASA's discrete projects. NASA utilizes the U.S. Army Corps of Engineers economic analysis tool, ECONPACK, to conduct these required LCCA. The facility project team develops the information utilized in all economic analysis. Although the OMB required LCCA are all developed within a few weeks, these LCCA are the end product of the facility project teams' economic analysis work.

The economic analysis is not conducted only once. It is a tool for the project manager to use with the client, the A&E and other stakeholders to review the cost estimate of the project. The

economic analysis is conducted often to reflect proposed changes for added requirements or for reduced scope. The cost estimate will become more accurate as the design progresses and it is used by the project manager to run reduced scope estimates as necessary and to conduct analysis of changes. The economic analysis is a tool that enables the project manager to better define the cost for the client and to show how changes to the scope will change the cost of the project. Center personnel (the facility project manager) use this tool for computation, analysis and decisions regarding modifications of the project.

Since the EA/LCCA is a tool used to improve the design, the estimate, the budget and ultimately the product supplied to the client, it would not make sense to remove this function from the Centers. The subteam determined EA/LCCA is not a candidate for consolidation in the NSSC.

H.3 Facilities Characteristics Matrix

The following table depicts Facilities functional tasks categorized by services to be consolidated, tasks requiring more study and services that will remain at the Centers. However, all but one of the facilities functions will be listed as "More Study Needed" since with the anticipated advent of Integrated Asset Management (IAM), there is the potential that some subfunctions will become standardized and better able to be consolidated.

Business Area	Services to be Consolidated	More Study Needed	Services Remaining at Centers
Facilities *180 Activities Reviewed*		Pending IAM – sub-functions from these functional areas may be able to be transferred: ■ Construction of Facilities (construction/renovation and repair) ■ Locally Approved Construction/Modification ■ Facility Planning and Design Maintenance ■ Real Property Management	■ Advisory - Program/Center Unique Services

H.4 FY02 FTE and Funding Baseline

The Facilities Subteam used templates to gather Civil Service FTEs, Contractor WYEs, and salary data for each of the functional tasks on a Center-by-Center basis. The Facilities Subteam gathered FY02 Baseline data for the entire Facilities function across NASA. In fiscal year 2002, there were approximately 493 Civil Service and 1853 Contractors giving a total of 2,346 FTEs. None of the facilities FTE will transition to the NSSC, they will all be retained by the NASA Centers. The FY2002 cost for facilities operations was approximately $339 million.

H.5 Conclusions

At this time, the facilities subteam does not believe any functions should transfer to the NSSC. This is due to the integral part Facilities functions play in Center operations. These functions also require in-depth program and project knowledge. Overall the "hands-on" nature of the Facilities functions makes it difficult to identify activities that would benefit NASA as a whole through a transition to a shared services environment. This conclusion was supported by the site visits to

other organizations that have already implemented shared services; none of those organizations had consolidated national Facilities functions into their shared services centers. In the future, with the advent of IAM and standardized practices, with other changes in technology, or an increased NSSC orientation and it may be possible to transition some functions to a NSSC.

Appendix I: Governance/Structure and Organization Approach

The Governance structure of the NSSC must consider both internal and external requirements. Governance includes both organizational designs, and reporting structures. Internally, the focus will be upon how the NSSC is structured, how the functional processes are represented, and how the functions report within the NSSC. Externally, the focus is on how the NSSC reports within the NASA organization. This will include whom the NSSC reports to from a customer perspective, and how the NSSC reports to senior management. How the NSSC is set-up will be important from a perception issue for other parts of the organization – this perception could become a determinate of overall success.

The approach that was followed included:

- Review of experiences of other organizations with Shared Service Centers
- Review of leading practice organizational examples
- Review of applicable fiscal and regulatory issues
- Drafting proposed internal and external organizational structures
- Defining reporting lines
- Articulating roles and responsibilities of key NSSC leaders

I.1 Findings and Draft Structures

I.1.1 Findings

The conclusion of the review steps determined that from an external perspective:

- NSSC will be located under the office of Associate Deputy Administrator for Institutions and Asset Management. This will lend credibility to the new institution through having top-level support
- NSSC will act as a peer to NASA centers. This will ensure the internal perception of NSSC is positive and the new institution will be treated with respect
- NSSC executive will be a general manager as opposed to a functional manager. This will ensure equity among functional line across the Agency

With regard to the internal structure of the NSSC, evidence from outside organizations suggested the following structural elements:

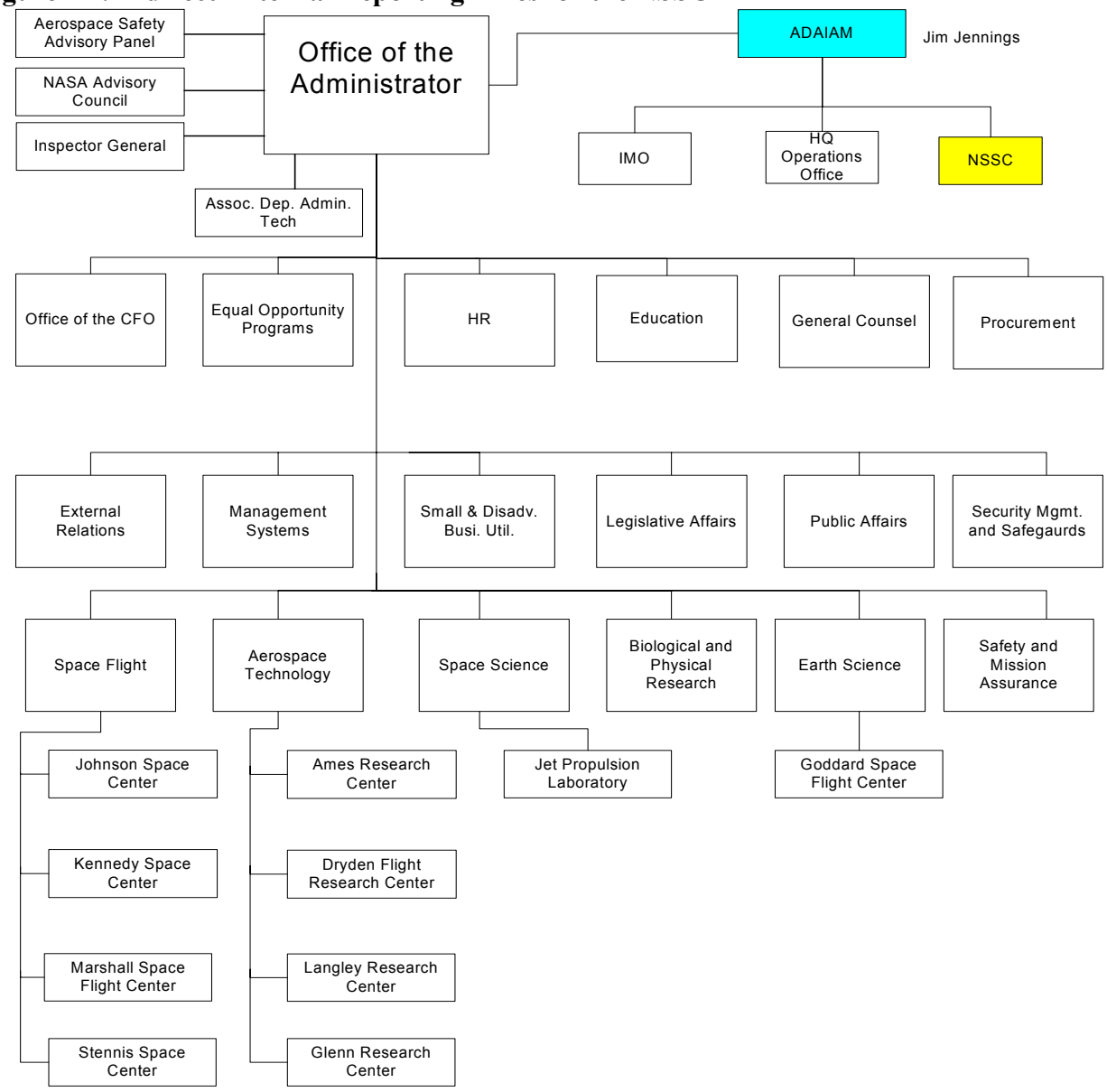
- NSSC will have a dotted line relationship with functional leads
- NSSC will have customer support liaisons at the NASA Centers
- A "Board of Directors" composed of various stakeholders will interact with the Leaderships of the NSSC. This will ensure that stakeholders are fairly represented across the Agency
- NSSC will have a single Shared Services Executive. This will promote consistency through having one point of contact

I.1.2 NASA NSSC Structural Considerations

External

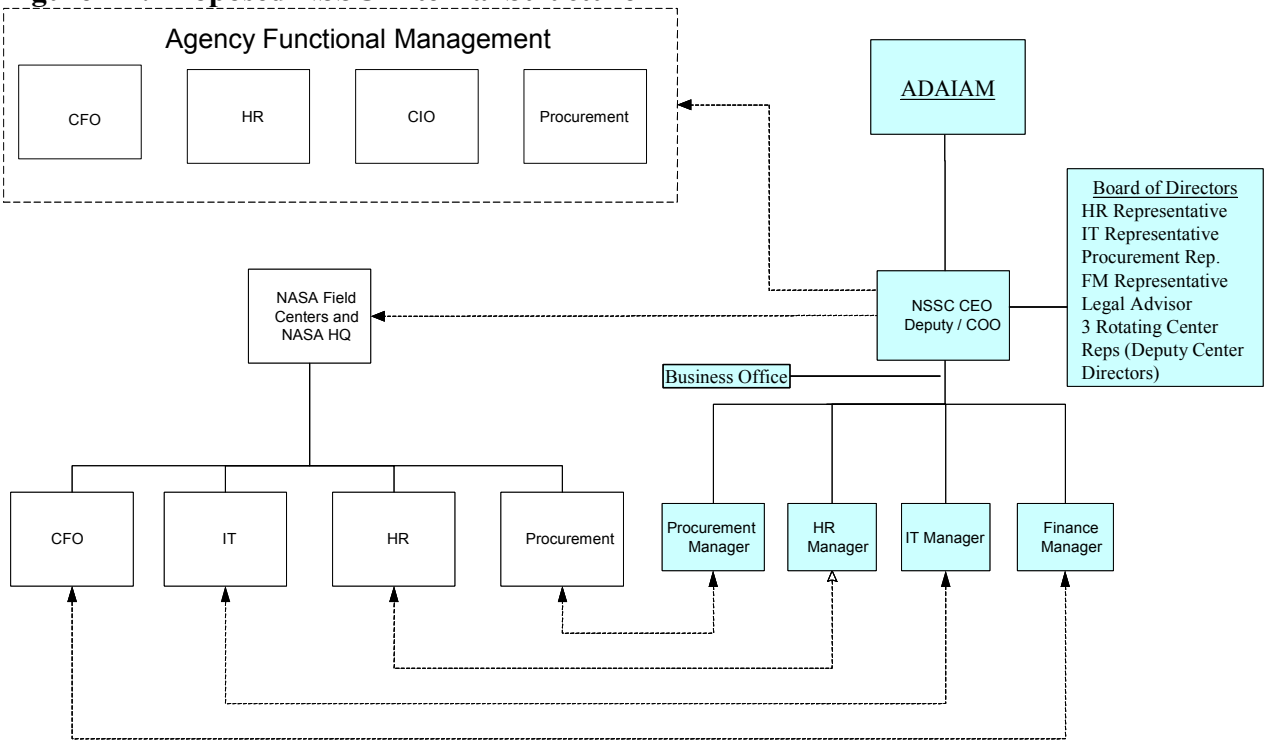
The NSSC will be a peer to other NASA Centers, located under the Associate Deputy Administrator for Institutions and Asset Management. The following indirect external reporting lines have been identified.

Figure I-1: Indirect External Reporting Lines for the NSSC



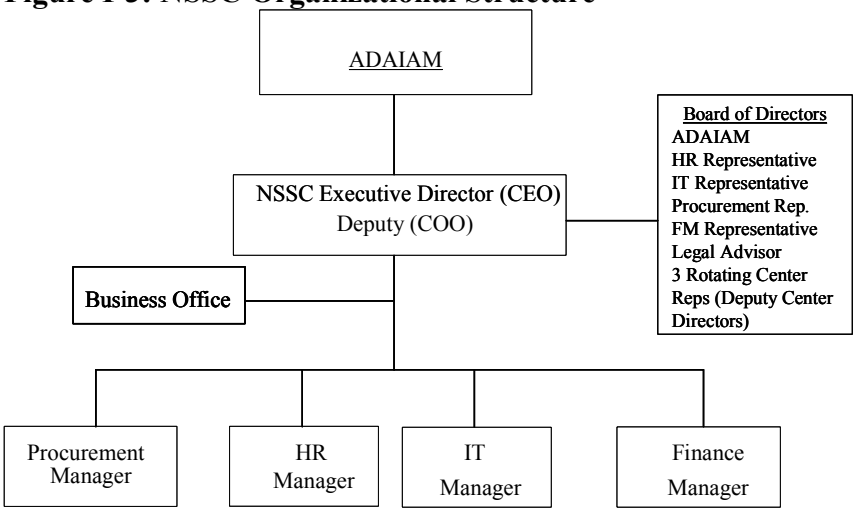
The proposed internal structure of the NSSC incorporates elements from organizations currently employing a shared services environment. The proposed NSSC internal structure is depicted below.

Figure I-2: Proposed NSSC Internal Structure



Under each of the functional managers an additional layer of the organization exists.

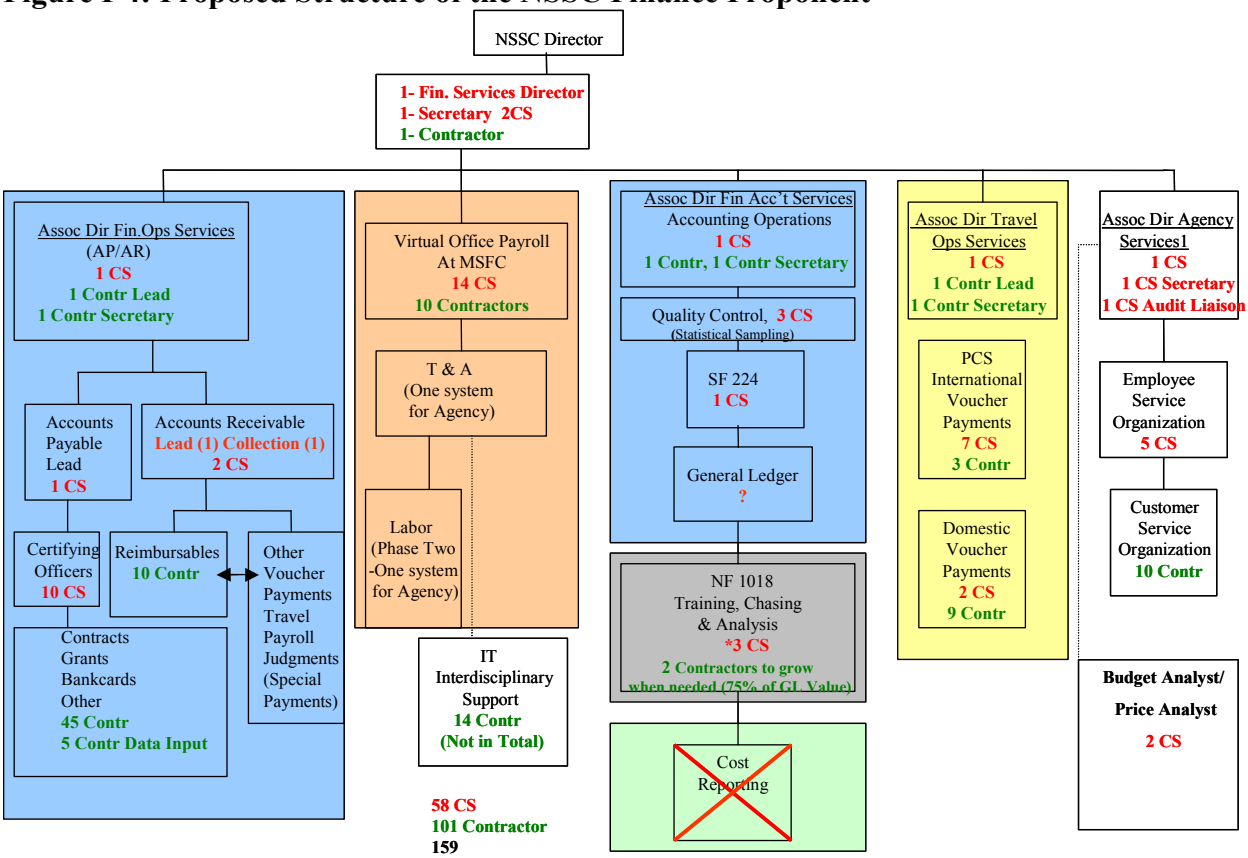
Figure I-3: NSSC Organizational Structure



Functions
Review & Approve:
- Strategic Direction
- Establish Policy
- Customer Advocacy and Communication
- Establish Metrics and Key Performance Indicators
- Evaluate CEO & COO

An example of how the Finance organization may look is depicted in the following diagram:

Figure I-4: Proposed Structure of the NSSC Finance Proponent



I.2 Next Steps

In order to determine how the NSSC will be structured and operated, the following steps were identified:

- Determine how the new organization will be governed
- Identify fiscal and regulatory issues that need to be observed
- Determine the composition and selection criteria for the NSSC executive
- Develop a financing strategy
- Establish how the new entity will be led, managed and structured (organization)
- Develop a NSSC Charter
- Develop composition of Board of Directors for the NSSC

Appendix J: Risk Management and Critical Success Factors

J.1 Risk Management

The transition from a current state of affairs to NASA's NSSC is a large undertaking. In order to ensure that NASA is prepared to properly handle issues and obstacles that will inevitably arise throughout the course of the NSSC Implementation, the Implementation Team identified a number of risks and mitigation strategies. The following table outlines those specific risks associated with the implementation of a shared services organization.

Table J-1: Risks and Mitigation Strategies

#	Risk Area	Mitigation Action
1	Unrealistic impact expectation	Develop and provide clear, crisp communications that explain the long-term, strategic nature of the project and explain that the initiative is not a near-term cost savings measure
2	Uncooperative organization	Define, explain and view NSSC as a "partner" focused on making all Centers and HQ jobs easier to perform
3	Poor/slow decision making	Establish appropriate governance processes to ensure timely, quality NSSC implementation decisions
4	Poor Scope Definition	Establish and document a clear and well-understood scope that is manageable from the outset. The NSSC should not be seen as the "answer" for everything
5	Inadequate union coordination	Involve Agency unions in a constructive dialog regarding the benefits of the NSSC to employees as well as the organization
6	Poor staff retention in NSSC	Ensure NSSC is a peer organization with Centers and has attractive benefits and well-defined career structure.
7	Decrease in timeliness, reliability, responsiveness and accuracy of information	Clearly define functional workflow processes to ensure common understanding of requirements. Develop service level agreements and metrics for all functional areas. Establish Help Desk. NSSC will be managed by a "Board of Directors" to ensure responsiveness to customers.
8	Loss of personal, face-to-face contact could result in impact to service quality for employees and decrease overall customer satisfaction – change in NASA culture	NSSC employees visit Centers on agreed upon schedule to provide face-to-face opportunities; IT infrastructure provides user-friendly personal communications capability; NSSC needs to be viewed as a partner with the Center-based staff in providing excellent service.
9	More difficult coordination, especially for agency functions	Plan "Summit Meetings" that bring functional leads together from across the Agency in order to facilitate communications and discussions concerning coordination between all functional areas throughout the Agency
10	Proximity to professional counterparts and career development opportunities	Rotation, opportunities, PDP assignments
11	Inappropriate and inexperienced staffing levels could impact ability to provide timely service; Loss of institutional knowledge	Ensure NSSC staffed at appropriate levels with competent/trained/customer-focused individuals. Utilize temporary staffing/ contract support to back-up those Center employees detailed for training and transition activities at the

#	Risk Area	Mitigation Action
		NSSC. Develop comprehensive staffing plan and start early to fill positions. Detail current NASA HR staff to assist in training and transition at NSSC. Through incentives, ensure capture of some of the existing talent at the Centers. Phase movement of activities.
12	Center management/ employees will not use NSSC-shadow staff at centers will evolve	NSSC liaison at Centers to facilitate use of NSSC; implement proper change management/ communications; continual support from NASA senior managers.
13	Lack of Center specific knowledge, culture, mission, and programs by NSSC employees could impact quality of service.	Provide proper training and orientation of NSSC employees; ensure that NSSC staff contain a number of current NASA employees for smooth transition.
14	Loss of flexibility; NSSC could develop standard operating procedures that do not take into account individual Center needs and requirements.	Ensure NSSC staff is customer-focused and understands the need to be flexible.

J.2 Critical Success Factors

Organizations that have successfully implemented shared services managed critical success factors. Critical Success Factors are dynamic and continually monitored throughout the project. The NSSC Implementation Team has identified the following critical success factors:

Committed Leadership – NASA leadership is aggressively supporting and sponsoring the project. Leaders need to be updated regularly and lead by example, facilitating and assisting where necessary. For example: Freeing up peoples' time so they can fully commit to the project. Integrates with Strategy - All efforts need to have a direct link that develops and advances NASA and supports its strategic goals.

Change Management - A project of this nature creates change and disruption, for the employees, customers and managers. Change Management helps identify resistance, and creates strategies for overcoming resistance.

Measures, Incentives and Objectives - Enables measurement of performance progress. A reward system that is formalized within a human capital strategy will help obtain buy-in and retention of key staff. Clear objectives will articulate direction and expectation.

Full Time Commitments from staff are required. The effort involved is so great that complete focus is necessary from the "best and brightest" staff.

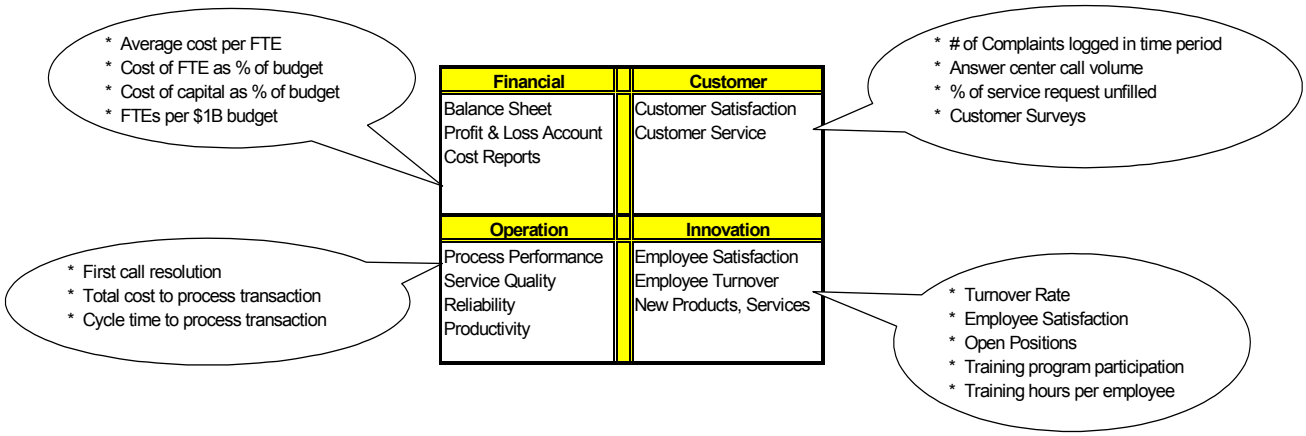
Project Management – ensures the success of complex, highly integrated projects that transcend functional boundaries. Project managers manage the project, make impartial decisions, manage business benefits and coordinate efforts.

Leveraging IT Investments - NASA is making a huge investment in IFMP. The success of the NSSC concept and its efficiencies and savings rely upon greater levels of automation. The IFMP will establish the prerequisite Enterprise Resource Planning environment and process standardizations.

J.3 Criteria for Measuring Success

Success should be measured to ensure that the project remains on target to meet its goals. The NSSC will rely on a balanced scorecard approach to set performance goals and measure progress over time. Four key parameters that will be tracked are: Financial, Customer, Operation and Innovation. Within each of the parameters are detailed measures:

Figure J-1: Criteria for Measuring Success



J.4 Overall Conclusions

Shared services represent an opportunity for new and improved services. The future environment represents a new era for business practices. This new era is evidenced not only by the recent industry trend toward consolidated business and technical services and by the President's recent mandate for improved government performance, but also by NASA's ongoing ERP system/IT and process standardization initiatives.

This is a complex, highly integrated project and its success will depend upon the management of risks and critical success factors. To gain the benefits of the NSSC will require the same focus as is used for any major project. NASA is the premier space agency in the world – the NSSC will support the PMA, promote "One NASA" initiatives, and enable employees to focus on its core functional processes.

Appendix K: Implementation & Subteam Members

K.1 Implementation Team Members

Member	Center
Lew Braxton III	ARC
Bob Fails	GRC
Sandra Buffalano	GSFC
Al Johnson	HQ
Emerdene Lee	HQ
Ken Newton	HQ
Mike Reilly	HQ
Bill Tufte	HQ
James Jennings	HQ
Don Abrams	HQ
Cathy Claunch	JSC
Dudley Cannon	KSC
Vanessa Stromer	KSC
Dr. Doresa Perry	KSC
Kim Dalgleish	LaRC
Charles Scales	MSFC

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K.2 Facilities

Subteam Member	Center
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Karen Flynn	GSFC
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Susan Welch	JPL
Nancy Bray	KSC
George Firth	LaRC
Edwin Jones	MSFC
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K.3 Financial Management

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Valerie Zellmer	DFRC
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K.4 Human Resources

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Dorothy Egbert	HQ
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K.5 Information Technology

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K.6 Procurement

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Monique Sullivan	DFRC	
Ron Sepesi	GRC	
John Baniszewski	GSFC	
Val Burr	GSFC	
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Bob Pirkle	KSC	
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Larry Bland	SSC	

K.7 Resources Management

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Glen Iwai	JSC	
Bill Dimmer	KSC	
Catherine Prohaska	LaRC	
Jim Bevis	SSC	

Appendix L: Acronyms

AAC	Austin Automation Center
ADAIAM	Associate Deputy Administrator for Institutions and Asset Management
ARC	Ames Research Center
DRFC	Dryden Flight Research Center
CoE	Center of Excellence
CCI	Consolidated Contracting Initiative
CIA	Central Intelligence Agency
CSC	Computer Sciences Corporation
CS	Civil Service
COTS	Commercial Off The Shelf
DOI	Department of the Interior
DM	Deferred Maintenance
DVA	Department of Veterans Affairs
EA	Economic Analysis
EDS	Electronic Data Systems
ERP	Enterprise Resource Planning
FM	Financial Management
FSC	Financial Services Center
FTE	Full Time Equivalent (Civil Service FTE)
GRC	Glenn Research Center
GSFC	Goddard Space Flight Center
HR	Human Resources
HQ	(NASA) Headquarters
IFMP	Integrated Financial Management Program
IT	Information Technology
JPL	Jet Propulsion Laboratory
JSC	Johnson Space Center
KSC	Kennedy Space Center
LaRC	Langley Research Center
LCCA	Life Cycle Cost Analysis
MSFC	Marshall Space Flight Center
NASA	National Aeronautic and Space Association
NCCS	NASA Computing and Communications Services
NOAA	National Oceanographic and Atmospheric Administration
NSSC	NASA Shared Services Center
NEPA	National Environmental Policy Act
OMB	Office of Management and Budget
ToF	Transfer of Functions
PMA	President's Management Agenda
PMO	Program Management Office
RM	Resources Management
SIPOC	Suppliers-Inputs-Process-Outputs-Customers
SS	Shared Services
SSC	Stennis Space Center
WASC	Western Administrative Support Center
WYE	Work Year Equivalent (Contractor FTE)